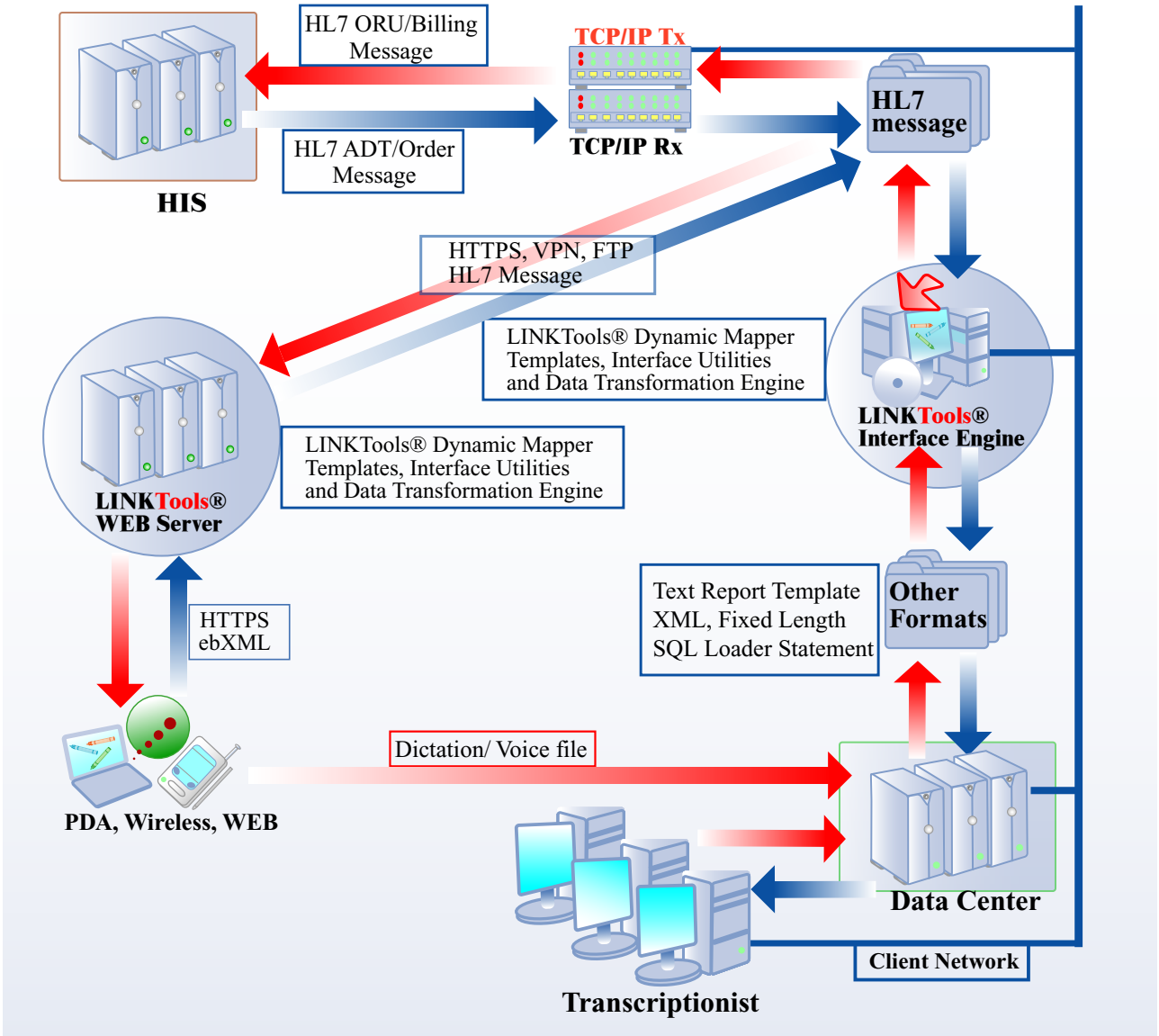
TRANSLINK™

LINKTools®

HL7 Interface For Medical Transcription and Billing

Absolutely No Programming



User's Manual

Table of Contents:

1.0 Introduction:

1.1 Purpose of this document:

This document describes the requirements for HL7 interface from HL7 compliant Hospital Information Systems(HIS) to Transcription and Billing System and back to HIS.

1.2 Interface Overview:

The interface is triggered by the availability of HL7 ADT/Order messages from HIS / Registration or Ordering Systems. HL7 messages are transmitted via TCP/IP Minimal Lower Protocols (MLLP) to the Receiving system at the Transcription Company Data Center.
LINKMED receive, processed and filtered this data and make it available in the pre-defined format required by the Transcription Company for transcriptionist or for dictation by the Physician. The Interface utilized TRANSLINK™ Intermediate database, where filtered data from the HIS HL7 Message is stored.

Once the result is dictated or transcribed, the Transcription System sends a transaction back to LINKMED that contains the "Transcribed Report or Dictation" rendered into specific "Report Format". LINKMED use Key identifier in the report to merge Patient Record stored in LINKMED intermediate database then converted the report into HL7 result message (ORU), Documentation Message (MDM) or Billing (DFT) for sending back to the HIS.

2.0 Data Shared Between the Systems:

2.1 From HIS to Transcription Company Data Center:

HL7 stream message is sent from the HIS to The Transcription Data Center and is received by the TRANSLINK™ TCP/IP Receiver where it is converted to HL7 Message and placed in the directory folder accessible by the TRANSLINK™ Interface Engine. The TRANSLINK™ Interface Engine Processed the HL7 Message to the pre-defined user format.
The following are TRANSLINK™ ADT and ORDER pre-configured output from HL7 ADT/ORDER message. The TRANSLINK™ users can use the LINKTools® Dynamic Mapper to configure additional output information for their systems if needed.

From HL7 ADT Message, TRANSLINK™ will output the following:
Patient ID Internal (PID_3_1 Medical Record Number also 1st ADT/Order Message Key Identifier)
Full Name
Birth Date
Sex
Street Address
Home and Work Phone Number
Account Number (PID_18_1 also 2nd ADT Message Key Identifier)
Social Security Number

From HL7 Order (ORM) Message TRANSLINK™ will output the above plus the following:
Visit ID
Accession number (OBR_3_1 2nd Order Message Key Identifier)
Universal Service ID & Text
Order date/time
Reason for exam and procedure comments
Ordering doctor ID and Full Name

See sample HL7 ADT and ORM Messages Page 23-24

2.2 From Transcription System to HIS:

Once the result document has been created and signed off by the Reading Physician or uploaded to the Transcription Company Data Center by the Transcriptionist, the following data are returned from the Transcription System to be processed to HL7 Result message (ORU), Documentation Message (MDM) and/or Billing (DFT) Messages and send to the HIS by the TRANSLINK™ Interface Engine and Transmitter.

Patient Information
Patient ID Internal (PID_3_1 Medical Record Number, Key Identifier)
Patient Account Numbers (PID_18 Key Identifier)

Order Information
Accession Number (OBR_3_1 Key Identifier)

Document Information
Document status (Preliminary, Final, Addendum or corrected report)
Result/Report Text

CPT code (If any)
Reading Doctor Information
Doctor identifier1 (Radiologist)
Doctor Identifier 2 (Signer)
Transcriptionist
Date Time of Transcription
Result Status (can be hard-coded)

See Sample Result Page 36-37

3.0 Interface Communication Protocols:

The protocol required for sending and receiving data between HIS and Transcription Company Data Center is HL7. A specific communications protocol must be used, namely, (MLP) TCP/IP client/server sockets, VPN or FTP.

If the VPN or TCP/IP Lower Level Communication Protocols (MLLP) are used LINKMED will utilizes the TRANSLINK™ TCP/IP Receiver to receive the HL7 ADT/ORDER (ORM) Message from the HIS. LINKMED will send HL7 Result Message (ORU^R01), Billing Message (DFT^P03) or Documentation Message (MDM^T02) to the HIS via TRANSLINK™ TCP/IP Transmitter. HL7 Standard version 2.xx is used.

4.0 HL7 Message INBOUND and OUTBOUND:

Data transformation from HL7 to Other Format and back to HL7 is via TRANSLINK™ Interface Engine which uses the Pre-configured Mapper Template as Interface Definition.

5.0 Getting Started:

TRANSLINK™ is HL7 interface software for transcription that allows users to integrate their systems to talk to the HIS or HL7 compliant Systems. TRANSLINK™ is easy to learn and use HL7 interface software; it is non-invasive and does not require any programming skill. Interface Engine, Dynamic Mapper Application, Plug & Play Communication Drivers, Interface Automation and Interface Trouble Shooting Utilities are includes in the TRANSLINK™ Software. The TRANSLINK™ Advance Interface Engine (5th Generation) and Interface Utilities that comes with TRANSLINK™ provides all the facilities needed to easily configure and maintain application interfaces to streamline healthcare information processing.

6.0 Creating your HL7 interface (Bi-directional):

6.1 Communication:

TRANSLINK™ comes with one TRANSLINK™ TCP/IP Receiver and Transmitter that is used to receive and send HL7 messages via TCP/IP (MLLP or VPN) connection.

6.2 TCP/IP Drivers Configuration:

This is the first step in setting up your interface by establishing communication between your system and the HIS. To configure the TRANSLINK™ TCP/IP Drivers follow the following step:

1- Launch the TRANSLINK™ TCP/IP Receiver by [Clicking] the "R" icon on the desktop shortcut
2- Click on Option Icon, Type in the port Numbers select the Protocols (default MLLP Format 2)
3- Next select the "Validate HL7Message" from the ACK dialog box. [Click] on "Option" button to the right
to bring up another dialog box, make sure the HL7 Processing ID and Version Number are matched with the incoming information on the MSH Segment.

Note: The HL7 version and the Processing ID (T, D or P) can be obtained from your client HL7 specification or from HL7 messages sent to your system in the MSH (Message Header) Segment. For example you receive HL7 message and the MSH segment look like the following:

MSH|^~\&|HIS|WIH|EKG|EKG|200306161038||ADT^A03|1055783798109|P|2.4|

Your Validate HL7 message configuration should look like the following (figure 1):

Processing ID= P
HL7 Version= 2.4
MSH Format= Others
Send ACK after # of consecutive NAKs= Never

TRANSLINK™ TCP/IP Drivers Features:

1- **Local TCP/IP Address**: This area is gray on the TRANSLINK™ TCP/IP Receiver; the PC internal network IP address or domain is displayed. On the TCP/IP Transmitter user must type in the IP address or Domain name of the receiving system.
2- **Port #:** This is the port Numbers assigned to receive incoming HL7 message from the Hospital Information System, the sending system need to know the IP address and port numbers of the receiving system to send HL7 message.
3- **Output files:** This is the location where the TRANSLINK™ Interface engine will look for HL7 files to be processed to user format. Click on the" **…**" button on the right and browse to the location of a folder. Input file name of user's choice but we suggest that you use the default File name **"*.ord"** then click on Option Button to the right and check the check box that says: Output as Date Stamp, point the Output files location to **"OrderR"** folder in the LINK Interface Folder. For the TCP/IP Transmitter this is the location of your HL7 files to be transmitted back to the HIS, the default location is **"ResultS"** folder.
4- **Protocols:** Use the default value MLLP Format 2
5- **Send ACK:** Click on the down arrow to select Validate HL7 Message, and then click on the Option button to the right. Check to make sure that the Processing ID and Version Numbers are matched with the incoming HL7 Message MSH_11 and MSH_12.

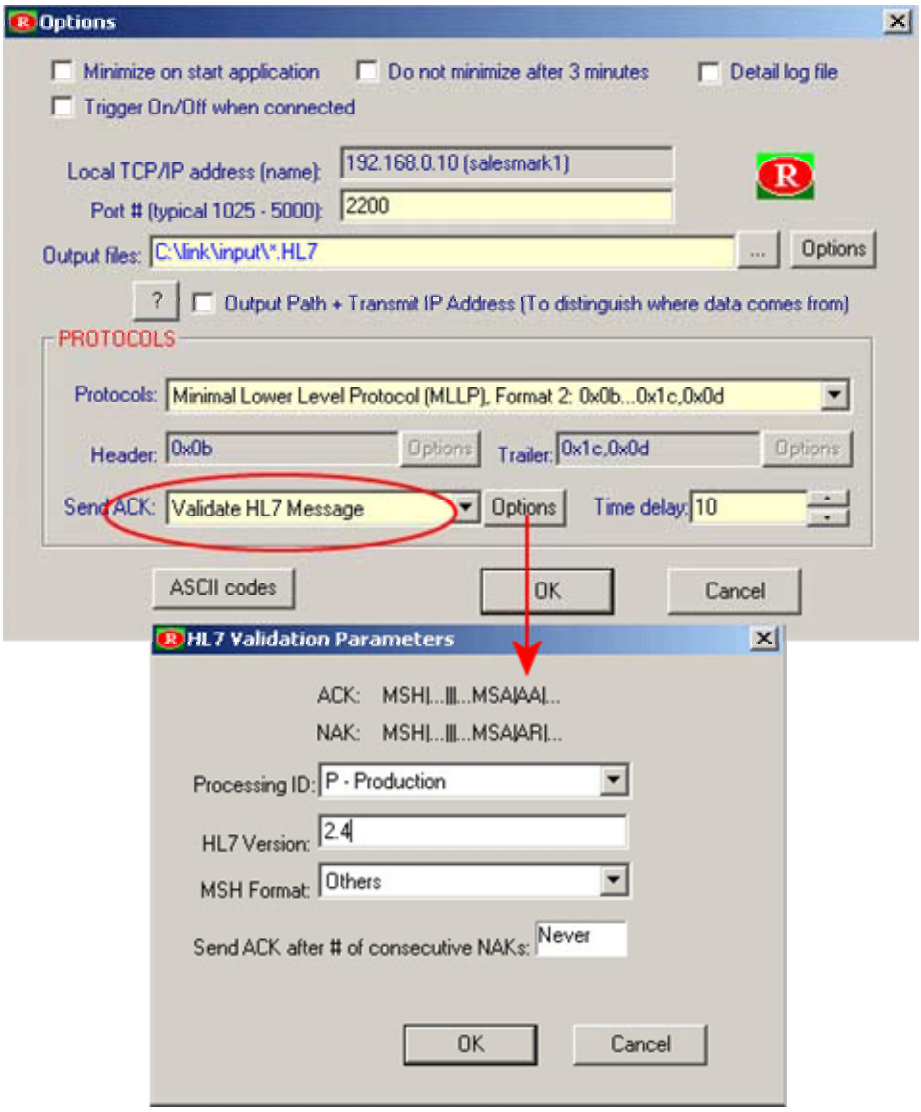


Figure 1: TRANSLINK™ TCP/IP Receiver Configuration Screen

7.0 LINKTools® Dynamic Mapper:

The TRANSLINK™ Pre-configured interface definition Template is created using LINKTools® Dynamic Mapper. This graphical user interface (GUI) allows user to configure and map data from one format to another for migration. When Mapping configuration is finished users have created an interface template called Mapper file (*.mpr). This Mapper file is scalable and portable and can be reused in other similar interface setting at different site (Avoid re-coding or recompiling from site to site).

7.1 TRANSLINK™ Mapper Configuration:

There are two types of TRANSLINK® ADT and Order both have identical Interface Definition Templates but function differently, they are: orderlnk.mpr, result.mpr and resultU.mpr.
The three templates are designed to minimize the extra work and are specific to the HL7 message type receives in the Transcription Company's Data Center. The TRANSLINKA is used

to process HL7 ADT message (ADT^A01...ADT^A 62). The TRANSLINKO is used to process HL7 Order message (ORM).

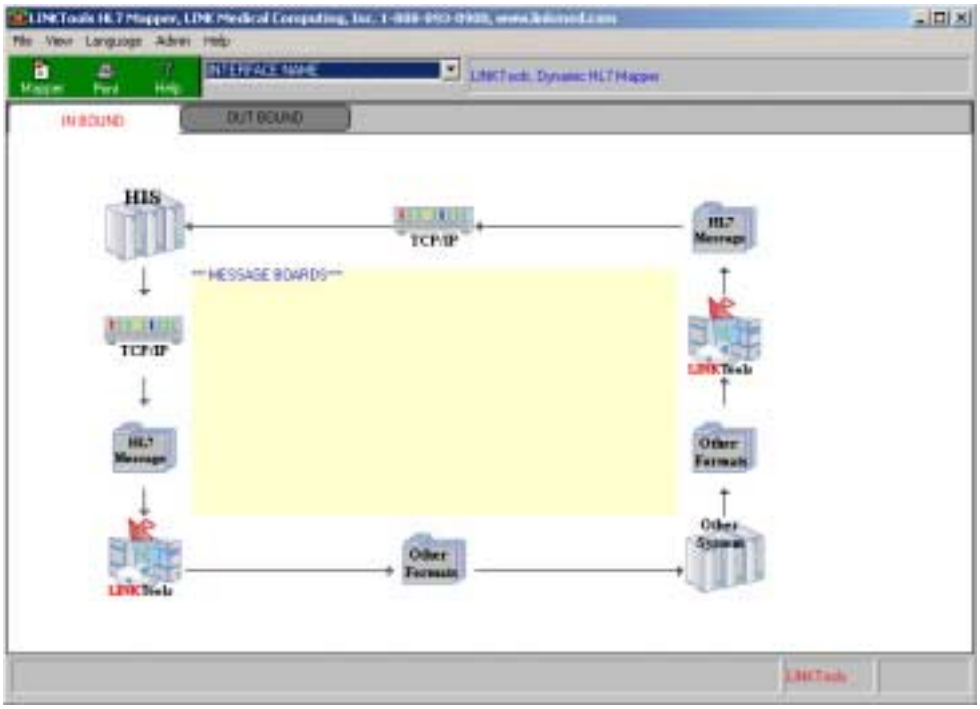


Figure 2: LINKTools® Dynamic Mapper Launched Screen

8.0 INBOUND ADT/ORDER Interface:

The TRANSLINK™ Interface Engine processed filtered and reformatted HL7 files from the receiving folder of the TCP/IP Receiver. Once transformed the reformatted files are placed into the pre determine network directory folder or in the TRANSLINK™ Interface facility's folder accessible by other applications. The Original HL7 ADT/Orders files are stored in the TRANSLINK™ intermediate database; this data may be needed to send back to the sending system along with the update results or reports.

8.1- Configuring your TRANSLINK™ Interface Definition Template:

If more information needed from the HL7 message user can easily use the LINKTools® Dynamic Mapper to configure additional output information. To access the Interface Template first launch the Dynamic Mapper application from the desktop shortcut , click on Mapper icon to bring up the Mapper configuration dialog box, click on file from the tool bar menu select open, browse to the Mapper Templates in the TRANSLINKA or TRANSLINKO interface folder, select the orderlnk.mpr, then click OPEN. Locate and click on the “Show All” button. Each HL7 segment and Segment Field is displayed in the work area. Check the “Write Out” box to the right of each Segment field that you want TRANSLINK® to output to your system. Click on the Mapper “Save” button when finish.

8.2 TRANSLINK™ HL7 Interface Setup:

Follow the step below if you need to change the location of the INPUT and OUTPUT file to other directory that is different from the default value. Launch the Dynamic Mapper Application and open the orderlnk.mpr.

1- Verify the location and format of a file to be processed by the TRANSLINK™ Interface Engine in the Input location. The default location and File Format on the TRANSLINK™ Mapper is C:\TRANSLINKA\OrderR*.ord or C:\TRANSLINKO\OrderR*.ord makes your change here if needed otherwise leave it at this default.

2- Next check the Output file location, the default location is C:\TRANSLINKA\OrderS*.XML or C:\TRANSLINKO\OrderS*.XML and the default output file format is XML. LINKTools® Dynamic Mapper offered several Output file formats option, please select a suitable file format that is relevant to your system, if you are not sure leave the default output in XML format or call our Tech Support for advice.

3- Next check the location of TRANSLINK™ Intermediate database (Default location is in TRANSLINK® Interface Folder). The Inbound filtered data is on hold here waiting for the update Result or Report message coming back from the Transcriptionist or Dictating Physician before merging and transform to HL7 message for sending back to the HIS.
Do not change the default location.

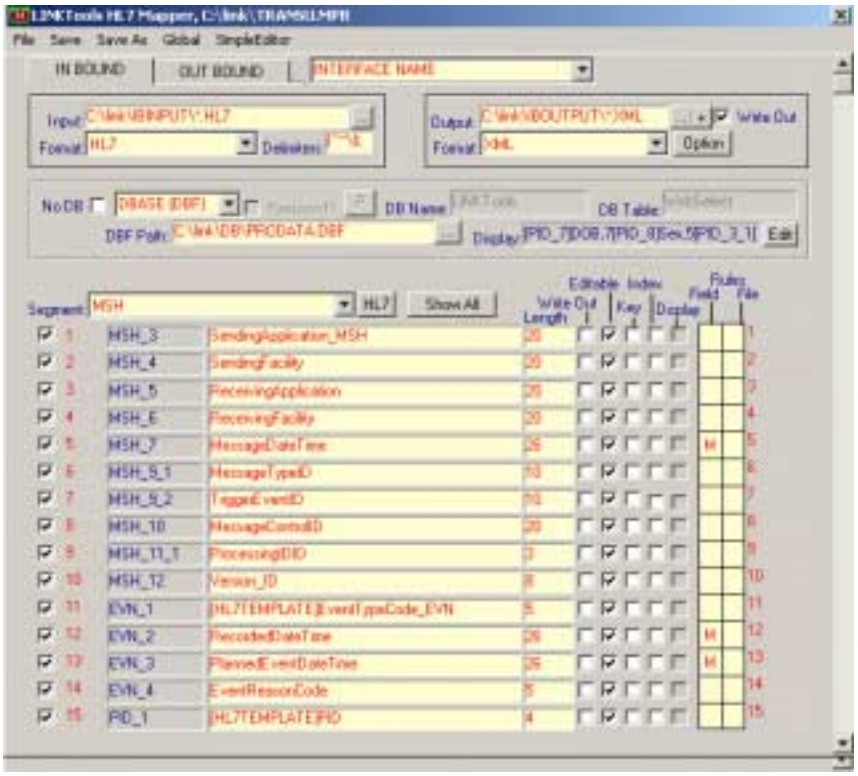


Figure 3: LINKTools® Dynamic Mapper Template Configuration Screen

8.3 TRANSLINK™ OUTPUT:

The following are default TRANSLINK™ output from HL7 ADT or ORDER message. TRANSLINK™ user can use the LINKTools® Dynamic Mapper to configure more output information if needed see section 8.1 above. There are two keys identifier use to identify the record in HL7 ADT or Order transaction. The key Identifier of each record is used to merge the record stored in the Intermediate database with result or report before HL7 conversion.

From HL7 ADT Transaction:

The following is the TRANSLINK™ default Output value:

Patient Information

Patient ID Internal (PID_3_1 Key Identifier)
Name
Birth Date
Sex
Full Address
Home and Work Phone Number
Account Number (PID_18_1 Key Identifier)
Social Security Number

From HL7 ORDER Transaction:

The following is the TRANSLINK™ default Output:

Patient ID Internal (PID_3_1 Key Identifier)
Name
Birth Date
Sex
Street Address
Home and Work Phone Number
Account Number
Social Security Number
Accession Number (OBR_3_1 Key Identifier)
Procedure/order description
Order Date/Time
Reason for Exam and Procedure or Comments
Ordering Doctor ID and Full Name

The output file format can be changed on the fly. If change occur during the live interface, it is required that you adjust the database immediately using TRANSLINK™ Interface utility called UDAADJUST. Additional output information can be added using the Dynamic Mapper to configure see section 8.1 above for instruction.

9.0 OUTBOUND Result Interface:

Lab Results or Transcribed Reports received back from Vendors systems are reformatted to HL7 messages. Utilizing the TRANSLINK™ Intermediate database in conjunction with the TRANSLINK™ Interface Engine the stored ADT/ORDER data will merged with results or reports using the unique keys identifier of each record then transformed to HL7 message before sending back to the sending system. There are a few adjustments that need to be made to the OUTBOUND Side of the Interface Template. The following describes how to make that adjustment

9.1 HL7 MSH Segment Construction for OUTBOUND Interface:

The following are examples of Mapper configuration of the MSH segment for OUTBOUND HL7 Messages from your system. The example provides user step-by-step for creating the custom MSH segment in the OUTBOUND part of the template. Note that the entire “Write Out” Box are checked, these are default value. Launch the Dynamic Mapper application and open orderlnk.mpr

1- Click on the OUTBOUND tab from the Mapper Configuration Dialog Box, check the Input location default: C:\TRANSLINK\ResultR*.TXT, File Format= Text Report, then check the Output location default: C:\TRANSLINK\ResultS*.HL7, File Format= HL7

2- Right click on the Mapper “Field Rule” on the following MSH segment’s fields: MSH_3, MSH_4, MSH_5, MSH_6, MSH_12 delete the word DELETE_ME and type in

the appropriate name, for example: MSH_3 (Sending System) you are sending the message your system name is LINKMED on the Mapping Field you see DontCare=DELETE_ME delete the word DELETE_ME and type LINKMED, when finish it should look like: DontCare=LINKMED. On MSH_12 type in the appropriate HL7 version, Example 2.2, 2.3 or 2.4. Type in appropriate HL7 version DontCare=2.2, DontCare=2.2 or DontCare=2.4

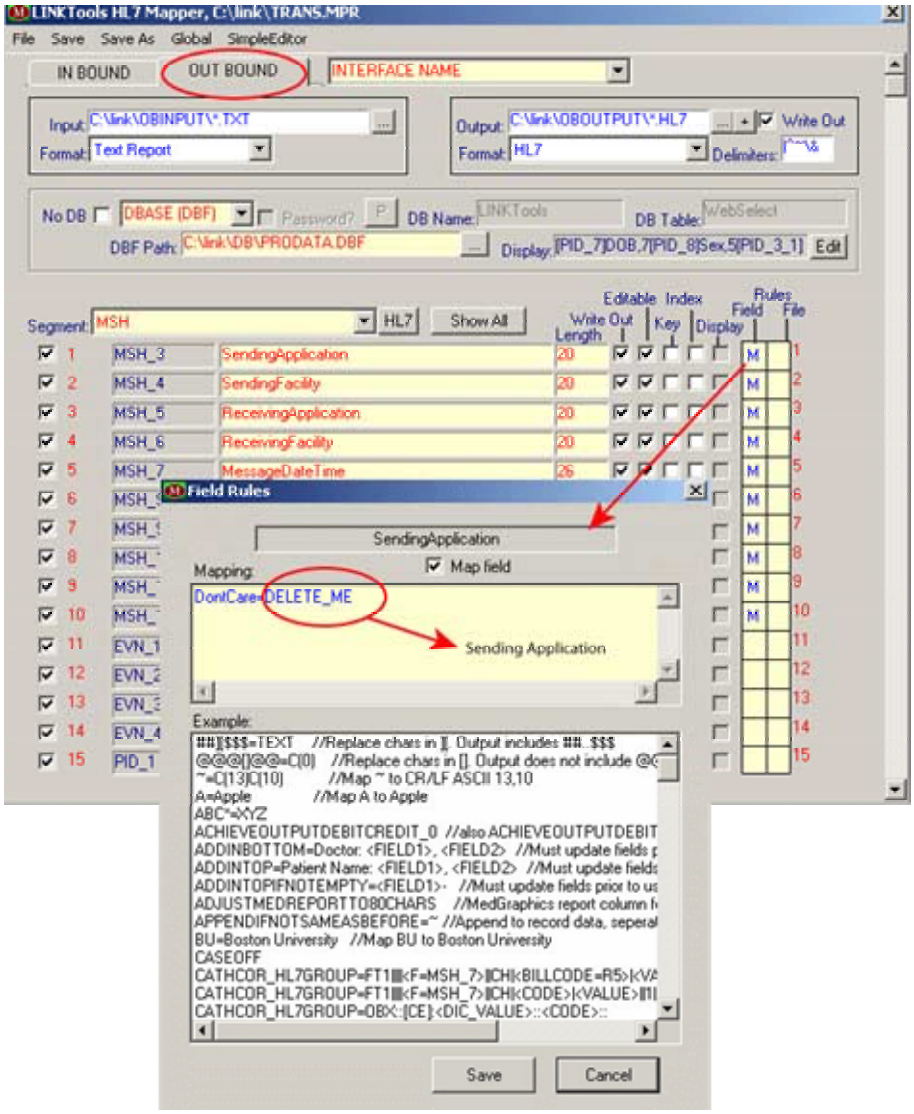


Figure 4: OUTBOUND MSH Segment Configuration

9.2 HL7 PID Segment Construction for OUTBOUND Interface:

Since The PID Segment contains Key Identifier of the patient record you only need to instruct the Mapper to look for the two “Key Identifier” from the report. For example your system output the following text report:

```
Patient MRN: 226008 (Key)
Patient Account Number: 2003845 (Key)
Patient Visit ID: 2
```

```
Patient Last Name: DOE
Patient First Name: JANE
Patient Middle Initial: F
Patient DOB: 03/02/1941
Patient Sex: F
Patient SSN: 018-00-4567
Follow by the report body
```

In the above example we have the two "Key Identifier": Patient MRN: and Patient Account Number: on this report. The OUTBOUND Mapper Configuration in the PID Segment for the two Key Fields are on PID_3_1 and PID_18_1 File and Field Rules:

1- On PID_3_1 Right Click on the File Rule Box on the right, you see:

GotoOffset=0
SearchFor [1] =Patient MRN:

2- Delete the word Patient MRN: and type in the output name from your system. Do the same on PID_18_1

3- Next Right Click on the Field Rules box on PID_3_1 and PID_18_1
The Mapping Field Rule here is to look for the ending character of that value and is depend on the "Report Type" in the above input example the value is terminated by the Carriage Return <CR> or C (13) which is default in Mapper configuration:

READINUNTILCHAR=C (13)

Note: Once the two key fields are read in and matched with the records stored in the intermediate database, the rest of the filtered HL7 segment fields will be filled automatically.

9.3 HL7 OBX Segment Construction for OUTBOUND Interface:

The OBX segment is used to transmit a single observation or observation fragment. It represents the smallest indivisible unit of a report. Its principal mission is to carry information about observations in report messages.
Follow the step by step below for your OBX segment adjustment; you only need to type in the starting location of the report:

1- From the "Segment" box click the down arrow to select the OBX segment. This is the segment where you instruct the Mapper to look for the Report body and read in the entire report into OBX_5 segment field of your HL7 Result message to be sending back to the HIS. By default LINK will output multiple OBX segments with Result or Report in OBX_5. The maximum character per line is 80. To look for the Report body right click on the File Rule yellow box to the right of OBX_5, you see:

GotoOffset=0
SearchFor [1] =DELETE_ME
In place of the DELETE_ME is where you type in the location of your Report body.
For example in your report the body of the report starts at <EndOFHeader> in place of DELETE_ME type in <EndOFHeader> see example in step 2 below:

```
Patient MRN: 226008
Patient Account Number: 2003845
Patient Visit ID: 2
Patient Last Name: DOE
Patient First Name: JANE
Patient Middle Initial: F
Patient DOB: 03/02/1941
```

```
Patient Sex: F
Patient SSN: 018-00-4567
Attending Physician: 0000200000010019
Referring Physician ID:
Referring Physician First Name:
Referring Physician Last Name:
Referring Physician Middle Initial:
Dictating Physician ID: 2
Transcriptionist Initials:
Job ID: 2536092
Addendum: A
<EndOFHeader> <<<TRANSLINK™ Interface engine will search for this value

CHEST (EPA AND LATERAL VIEWS) CLINICAL HISTORY:  Follow-up for pneumonia.
```

2- The following is your input example on the OBX_5 File Rules

GotoOffset=0
SearchFor [1] =<EndOFHeader>

The TRANSLINK™ Interface engine will search the Report Text looking for <EndOFHeader> then read in the content of the report with format to output one OBX line per 80 characters in length (Default setting).

Another example:

The body of the report below start after <Report Text> the File Rules Mapping as follow:

GotoOffset=0
SearchFor [1] =<ReportText>

Report example:

?xml version="1.0" encoding="UTF-8"?>
<!—ACME report generic XML, www.W3C.com-->
<Report>
<StudyID>483428</StudyID>
<PtMRN>000000123456</PtMRN>
<MedicalCodes>
<CPT>
<Code>76092</Code>
<Description>MAMMOGRAPHY SCREENING</Description>
</CPT>
</MedicalCodes>
<ReportText> <<< TRANSLINK™ Interface engine will search for this value
Technique: report below is made up text.
The following imaging sequences were performed:
Craniocaudal views, and mediolateral oblique views.

Findings: The breasts are extremely dense, which lowers the sensitivity of mammography. No mass is present in the breasts…

3- On OBX_5 Segment's field Next Right-Click on the "Field Rules" you will see the following:

READINNUMOFCHARS=60000
MAXCHARSPERLINE [80]
OUTREPEATLINES=OBX||TX|||<value>||||||<OBX_11>|||<OBX_14>|

Leave these setting as is, if you wanted to modify these field call LINK Technical support for advice or instruction your HL7 Result output will look like example on page 37.

10.0 Custom Z Segment:

It is not unusual when the sending system sent an HL7 ADT message which contains the site custom Z segment. The HL7 Z segment is defined as added information that is not available in the HL7 segment and intended for use at that site only. In order for you to add site custom Z segment you must obtain the description of their Z segment filed, then follow the step by step below to add site custom Z segments into the TRANSLINK™ HL7 Segments library :

1. Using WordPad or Text Editor open the LTMAPPER.dic in the TRANSLINK™ Interface facility's folder
2. Add your custom HL7 Z segments and its description to the library in alphabetical order, define the length of each field by following the existing segment sample then save it
3. Launch the LINKTools® Dynamic Mapper. At the Mapper opening screen press and hold Ctrl+Alt then type G, enter the default password provided in the user's manual click generate and you are ready to use your custom Z segments to build your HL7 message

11.0 TRANSLINK™ OrderVue:

OrderVue is a Windows compliant, graphical user interface, which allows users access to the patient ADT/ORDER information stored in the TRANLINK™ Intermediate Interface Database. Users can view or initiates the selection of a patient to write out by choosing the *OrderVue* icon on the LINK Interface PC desktop and select the Mapper file that is used to process the data. OrderVue displays the available patient ADT/ORDER data in a tabular or spreadsheet format, User must have privilege to view the database.

Note: It is site responsibility to keep their patient information confidential. The TRANSLINK™ Database Viewer can be configured to limit user's access from the Network Administrator console of the OrderVue Application. A detail transaction of data exchange is stored in the Achieve folder and is intended for trouble shooting an interface only. The entire transaction log will be purged by the TRANSLINK™ routine management at the time it is set to run in the TRANSLINK™ Scheduler daily.

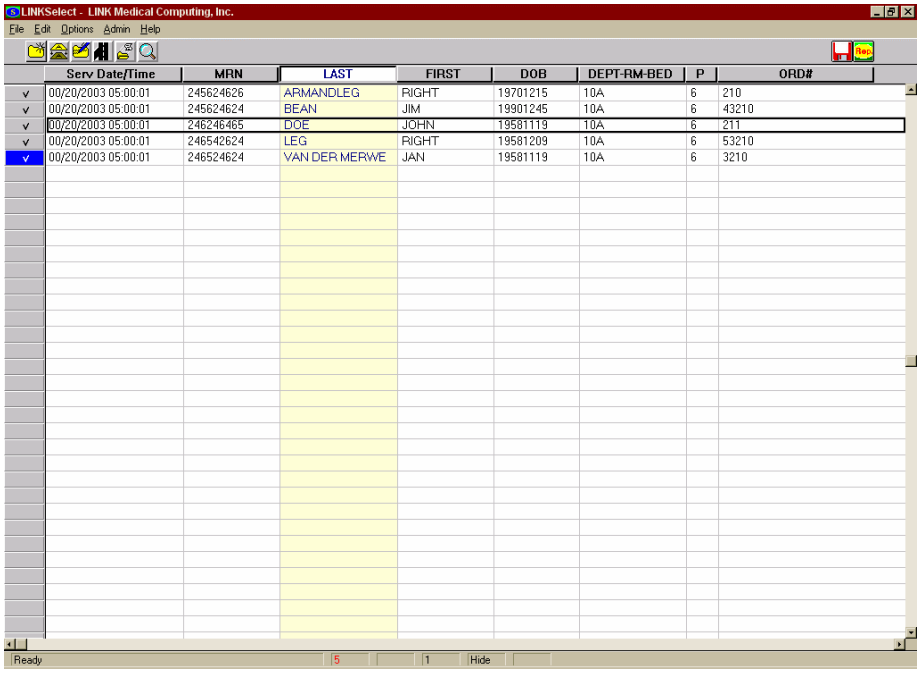


Figure 6: TRANSLINK™ OrderVue Screen

11.1 Registration Requirements:

All TRANSLINK™ software must be registered. Upon installation, a temporary 30-day registration is automatically issued. This should be replaced with a valid registration id obtained for the particular machine where the software is installed. An individual registration allows a single instance of all the TRANSLINK™ software components to run (tools, transmitter, and receiver) on a given machine. If the site requires an additional component to run e.g. a second transmitter, then an additional registration number is required for that component. Without this, only a single instance of each component will be allowed to run on a given machine.

11.2 TRANSLINK™ TCP/IP TRANSMITTER SETTING:

The TRANSLINK™ TCP/IP Transmitter is used to send HL7 Result and/or Billing Messages back to the HIS. Follow the step below to setup your TRANSLINK™ TCP/IP Transmitter (Figure8).

Launch the TCP/IP Transmitter from the shortcut desktop. Select the appropriate transmitter: Transmitter for Orders or Transmitter for MMQ.

1- Click on “Options” Icon to bring up configuration dialog box

2- Type in the “ Transmit to TCP/IP Address” the IP address of the HIS assigned to your TRANSLINK® Interface for sending back HL7 Result/Billing Messages in the “ Transmit to TCP/IP Address” box

3- Type in the “ Port Numbers” to send the Message in the “Port #” box

4- Leave the “Transmit files” box at default value

5- Leave the Protocols setting at default value (MLLP Format 2).

6- In the “ACK” box, click the down arrow to the right and select: “Validate HL7 Message”

7- Click on “Option” button to the right of the “ACK” box to access the HL7 Validation Parameters

8- Click the down arrow in “Processing ID” box and select “ P”

9- Type in the HL7 version numbers in the “ HL7 Version” box

10- Click [OK] to save you’re your ACK settings, then [OK] to save the Option settings. Respond [Yes] to exit now

11- Re-launch the TCP/IP Transmitter

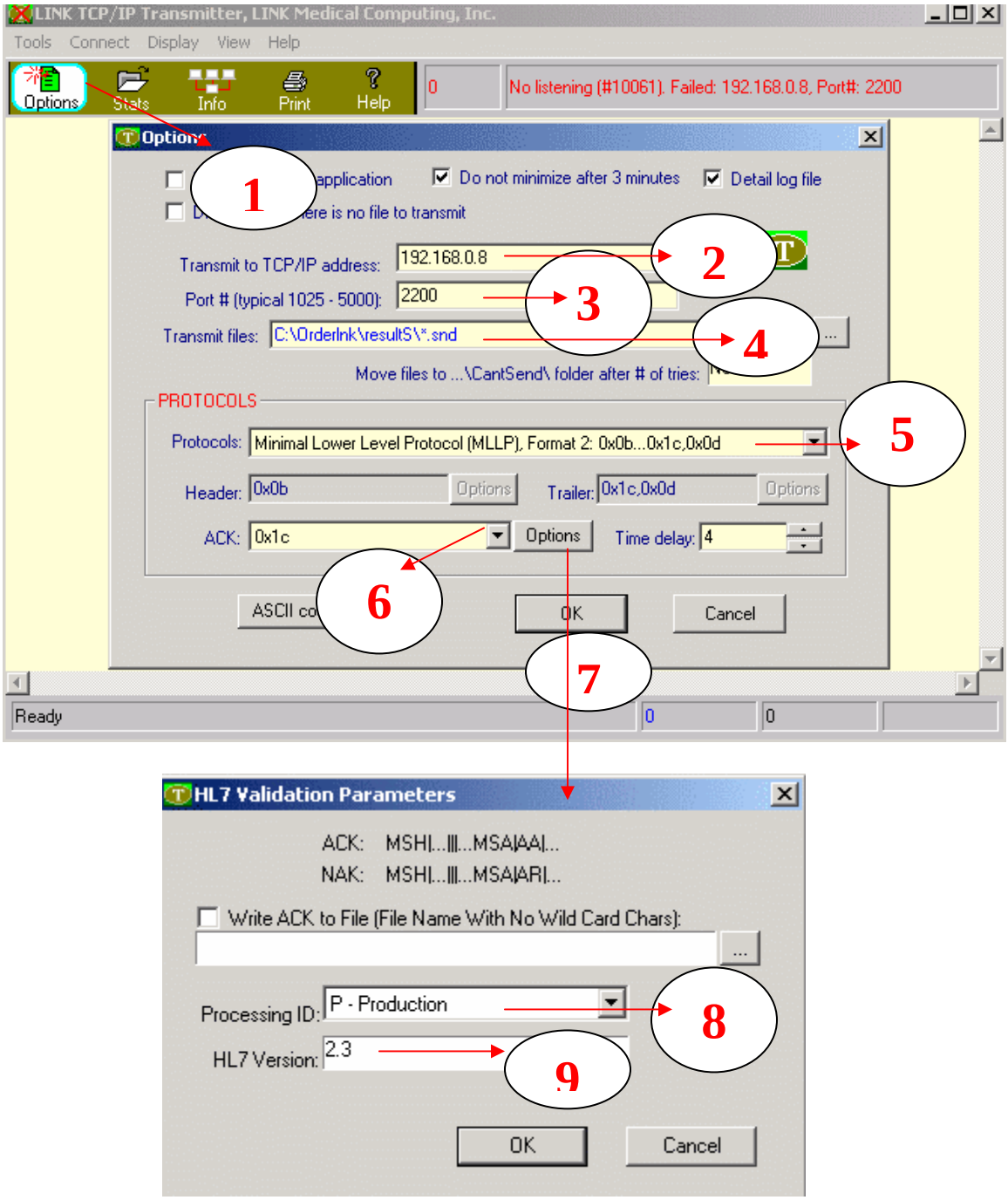


Figure 7: TRANSLINK™ TCP/IP Transmitter Configuration

11.3 TRANSLINK™ TCP/IP RECEIVER SETTING:

The TRANSLINK™ TCP/IP Receiver is used to receive HL7 ADT/Order Messages from the HIS. Follow the step below to setup your TRANSLINK™ TCP/IP Receiver (See Figure 8)

Launch the TCP/IP Receiver from the shortcut desktop.

1- Click on “Options” Icon to bring up the configuration dialog box

2- Type in the “ Port Numbers” assigned to your TRANSLINK™ Interface in the “Port #” box

3- Leave the “Output files” box at default files name and location

4- Leave the Protocols setting at default value(MLLP Format 2)

5- In the “Send ACK” box, click the down arrow to the right and select: “Validate HL7 Message”

6- Click on “Option” button to the right of the “Send ACK” box to access the HL7 Validation Parameters

7- Click the down arrow in “Processing ID” box and select “ P”

8- Type in the HL7 version numbers in the “ HL7 Version” box

9- Leave the “ MSH Format” and “Send ACK after #’s of consecutive NAKs” at default value

10- Click [OK] to save you’re your ACK settings, then [OK] to save the Option settings. Respond [Yes] to exit now

11- Re-launch the TCP/IP Receiver

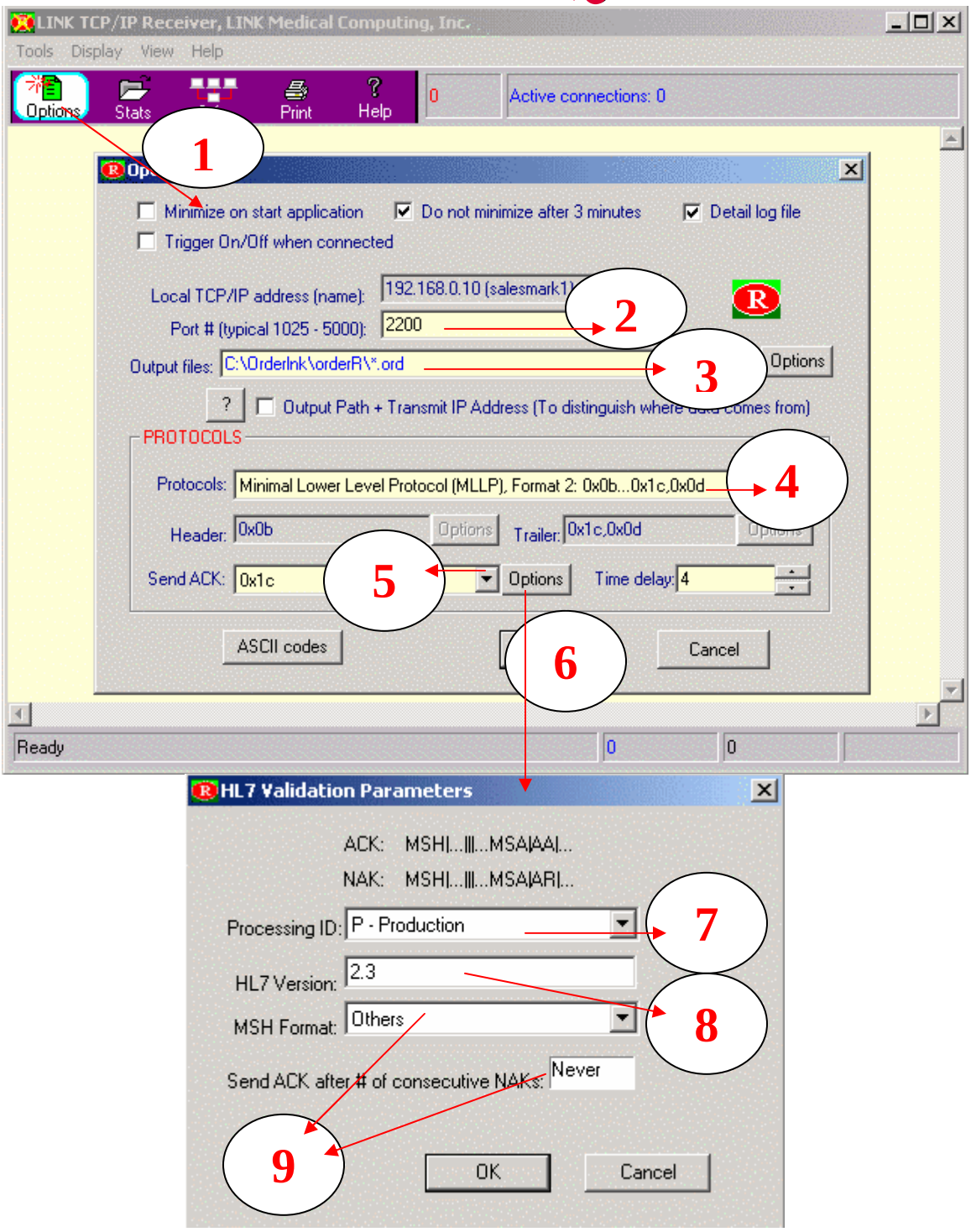


Figure 8: TRANSLINK™ TCP/IP Receiver Configuration

11.4: BACKUP YOUR TRANSLINK™:

Once you finish your configuration the next step is to create a new folder on the C drive called "TRANSLNKBACKUP" select the entire contents in the "TRANSLINKA/O" Folder make [Copy] and [Paste] the copy to the backup folder.

11.5 Implementing The Interface:

When initial setup is done Click on the LINK Scheduler (LTSC), TCP/IP Receiver and Transmitter from your desktop short cut to start your interface.

11.6 START THE LINK SCHEDULER:

You may then minimize this application.

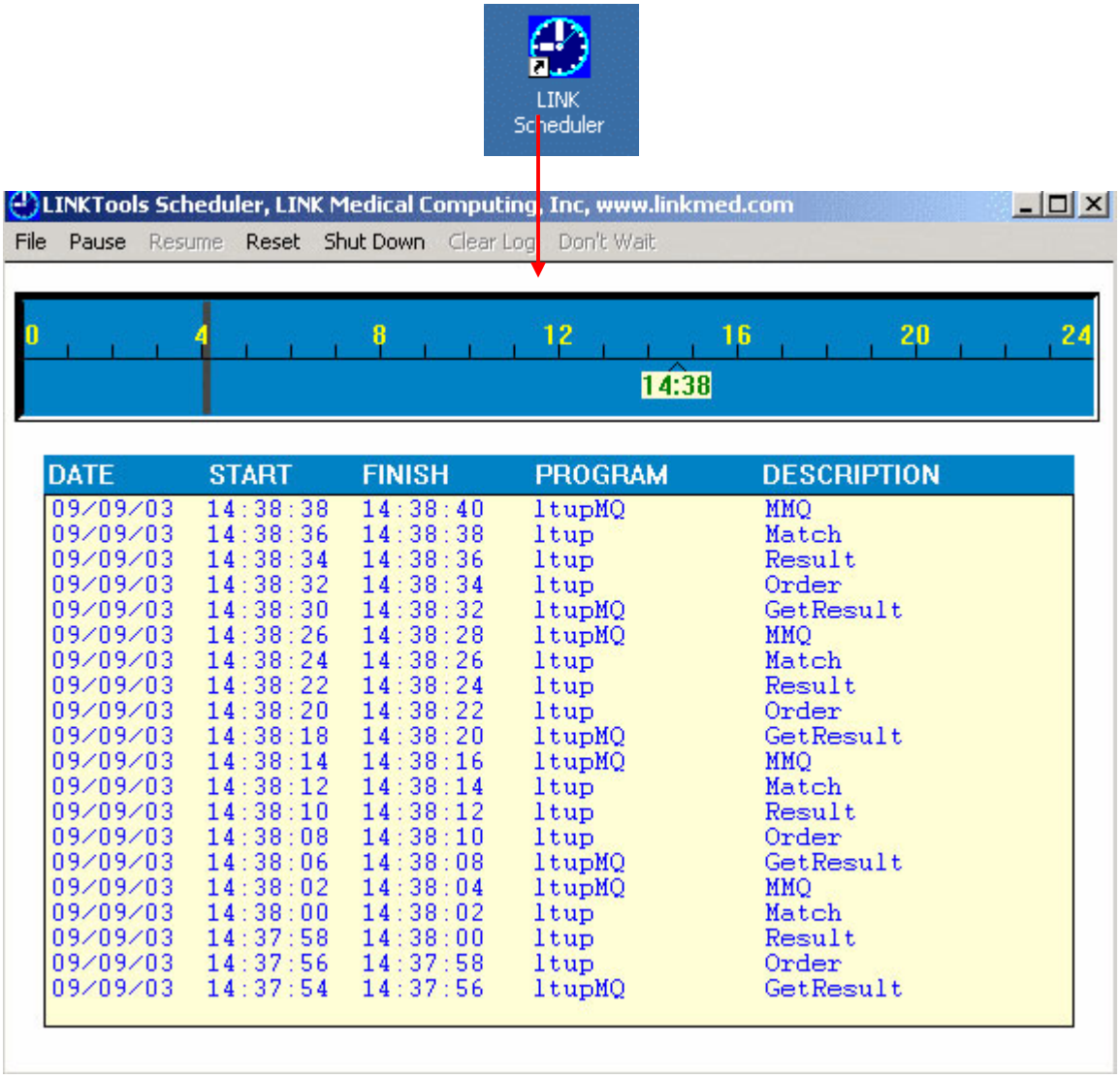


Figure 9: The TRANSLINK™ Scheduler Desktop Shortcut Icon (top) and Operational Screen

11.7 Unmatched Report/Results Reconciliation Module

The following is a description of the reconciliation mechanism that will be implemented as part of the standard TRANSLINK™ product.

PURPOSE: The Unmatched Results Reconciliation module is designed to address what happens when reports or result received with the 2 keys identifier mismatched. This typically (but not exclusively) occurs with emergency STAT or manually enters patient data.
Without access to accurate and comprehensive patient ADT data from an originating ADT, manual entry may result in incomplete and/or inaccurate information being entered.

The key identifier for reconciliation purposes is the Medical Record Number and Account Number/ Order Number. Inaccurate and/or incomplete patient/record identifiers result in TRANSLINK™ being unable to accurately match the Report/Result with its originating ADT/Order. ADT/Orders cannot be automatically reconciled and results and billing may not be transmitted to the customer's HIS. Consequently, administrators and/or IT personnel spend significant time tracking and reconciling ADT/Orders with Results.

It should be noted that it is not possible to fully automate the reconciliation process where the above scenario occurs. However, the Unmatched Results Reconciliation Module streamlines the manual reconciliation of unmatched records by minimizing the time and effort required to find, correct and match patient ADT/Orders with Results.

DESCRIPTION: The 'Reconciliation' module intercepts all results that flow from Transcription or Dictation Systems to TRANSLINK™ and will capture and display all results that do NOT have the unique Key Identifier. Records that do match the unique Key Identifier would flow through to TRANSLINK™ and be processed to HL7 Message as usual.

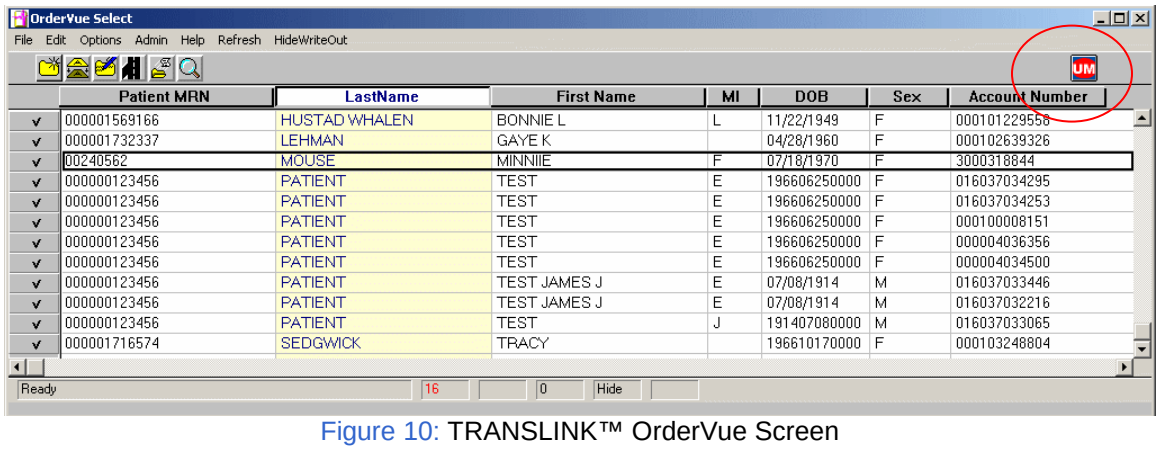


Figure 10: TRANSLINK™ OrderVue Screen

USING THE RECONCILLIATION MODULE:

1) Once Transcribed Report or Dictation have been confirmed and send to TRANSLINK™, an authorized user (this should not be available to all and sundry) will bring up a screen that looks similar to the existing DB Viewer, on which only results with Unmatched Key are displayed.
2) The user could also bring up the standard LINKSelect screen and will be able to see all outstanding ADT/Orders stored in the Intermediate database.

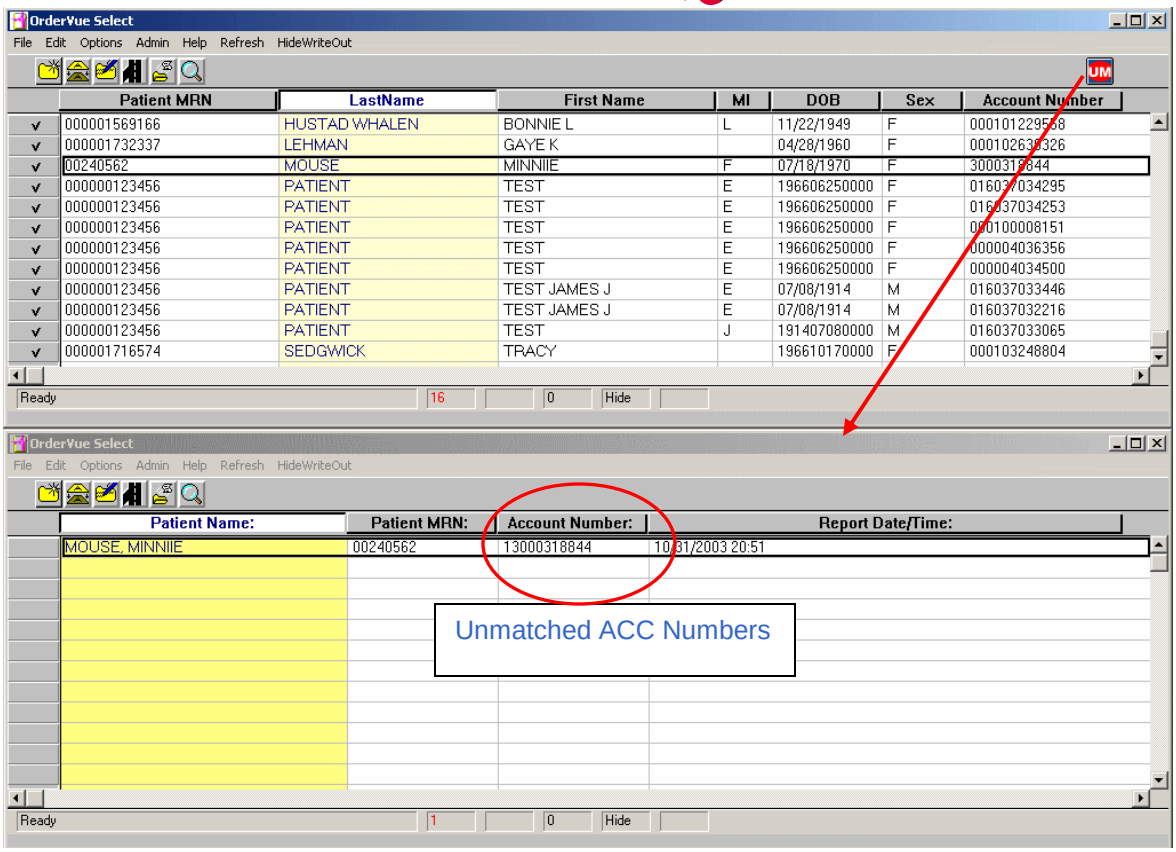


Figure 11: TRANSLINK™ OrderVue: Order and Reconciliation Module Dialog Box

3) The user would look to find the associated ADT/Order match for each Report/Result that has no Key identifier if found the user can correct the mismatched Key (The only place to look is the Medical Record column and the Account Number/Order Number column).
4) The user would then copy and paste the mismatched Key Identifier from the DB Viewer into the associated Report/Result in the Reconciliation module. (To open a record, one double clicks on the record and this opens up an edit window in which available data fields are displayed and can be edited).
5) The user would then click the “Write Out' button for the amended Report/Result. This amended Report/Result would then flow from the reconciliation module through to TRANSLINK™ to be merged with its associated ADT/Order.
6) On “Writing Out' the amended Report/Result, that Report/Result is removed from the Reconciliation module screen so that the number of records to be dealt with constantly diminishes. If kept up-to-date, there should only be a limited number of incorrect/incomplete records on the reconciliation screen each day.

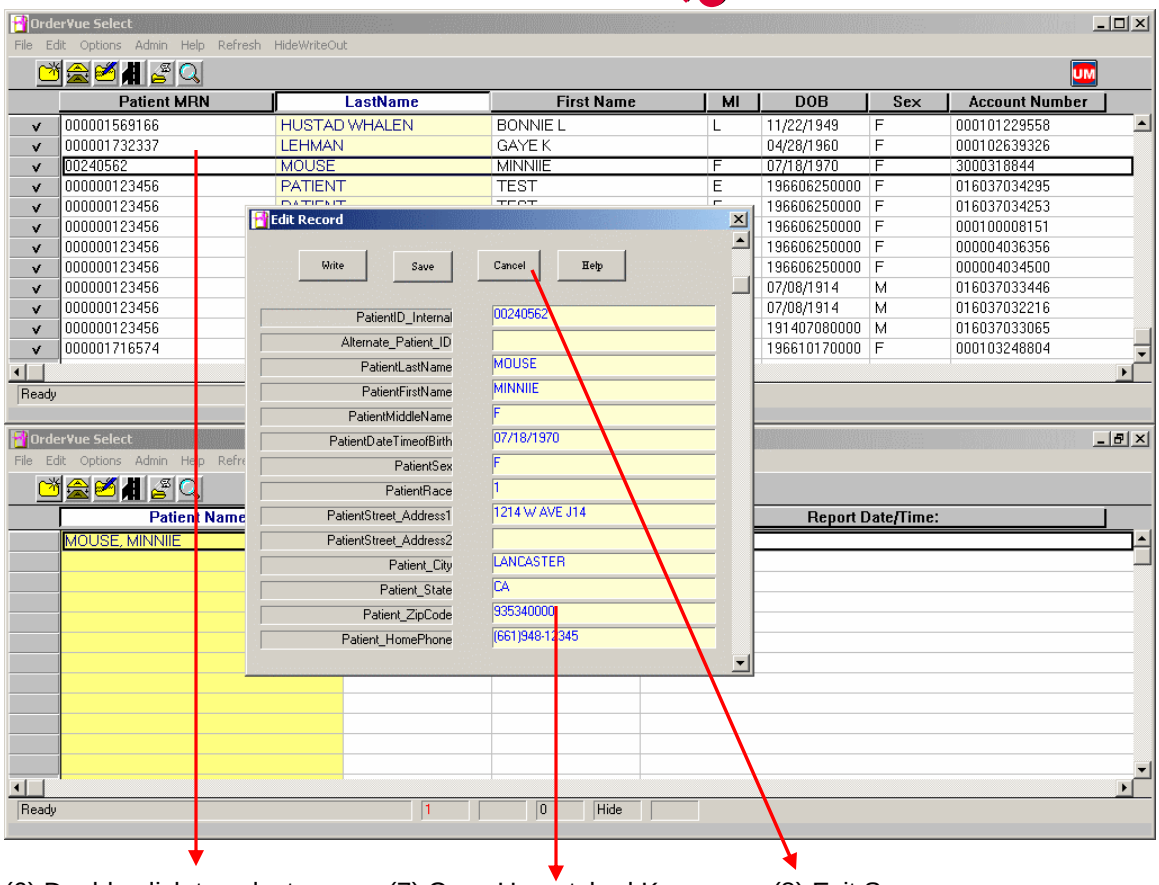


Figure 12: TRANSLINK™ Report/Results Amendment

NOTES:

a) If the users keep the system current, the TRANSLINK™ application will function as originally envisioned and the reconciliation process should be easier and more efficient.

b) IMPORTANT: There is a risk that the user's will focus on the reconciliation mechanism as a way to 'fix' complete/incorrect records and will leave incorrect/incomplete data on Transcription data Center I.e. Data flowing from TRANSLINK™ to the HIS will be correct but the data on Transcription System may remain inaccurate. If patient data is inaccurate or incomplete to the point that it is problematical on Transcription System itself (e.g. patient's name or ID is incorrect and may result in the Report being misplaced or incorrectly identified within Transcription System). This is a work-flow/procedural issue that needs to be addressed by the site.

12.0 HL7 Basic:

What is HL7?

Health Level Seven is one of several ANSI-accredited Standards Developing Organizations (SDOs) operating in the healthcare arena. Most SDOs produce standards (sometimes called specifications or protocols) for a particular healthcare domain such as pharmacy, medical devices, imaging or insurance (claims processing) transactions. Health Level Seven's domain is clinical and administrative data. Their mission is to: *"To provide standards for the exchange, management and integration of data that support clinical patient care and the management, delivery and evaluation of healthcare services. Specifically, to create flexible, cost effective approaches, standards, guidelines, methodologies, and related services for interoperability between healthcare information systems."* Website: http://www.hl7.org

12.1 HL7 Interface Overview:

In health care, a trigger event is a real-world event that creates a need for data to flow among systems. A trigger event, for example, can be admitting, transferring, or discharging a patient. This document demonstrates how triggered events can be put into message format and delivered to other vendor systems.

This tutorial has message formats that consist of data fields that are of variable length and separated by a field separator character. Rules describe how the various data types are encoded within a field and when an individual field may be repeated. The data fields are combined into logical groupings called segments. Each segment begins with a three-character literal value that identifies it within a message. Segments may be defined as required or optional and may be permitted to repeat. Individual data fields are found in the message by their position within their associated segments.

12.2 Message Transactions:

A message is a unit of data transferred between systems. It is comprised of a group of segments in a defined sequence. Each message has a message type that defines its purpose. For example, the ADT (Admission, Discharge and Transfer) message type is used to transmit portions of a patient's ADT data from one system to another. The three-character code contained within each message identifies its type.

12.3 Message Construction:

Special characters are used when developing a message. They are as follows: Segment Terminator, Field Separator, Component Separator, Subcomponent Separator, Repetition Separator, and Escape Character.

The Segment Terminator is always a carriage return. The other delimiters are defined in the Field Separator and the Encoding Field that are found in the Message Segment Header **(MSH).**

The Field Separator is **(|).** This character is in the Field Separator field in the **MSH** segment. The Field Separator separates two data fields that are adjacent to each other in the segment. It also separates the Segment ID from the first data field segment.
The Component Separator **(^)** is the first character in the Encoding Character field in the **MSH** segment. This character is used to separate adjacent components of some data fields.

The Repetition Separator **(~)** is the second character in the Encoding Character field in the **MSH** segment. This is used in some data fields to separate multiple occurrences of a field, and is only used where specifically authorized.
The Escape Character **(\)** is the third character in the Encoding Character field in the **MSH** segment. This field is optional.

The Subcomponent Separator **(&)** is used to separate adjacent subcomponents of some data fields. This separator is the fourth character in the Encoding Character field in the **MSH** segment.

Example:

MSH|^~\&|LINKMED|LINKLPZI|RMS||200204150926||ADT^A04|CHPFOPUP|P|2.3|<CR>

Each message is defined in special notation that lists the segment IDs in the order they would appear in the message.

Braces **{ }** indicate one or more repetitions of the enclosed group of segments.

Brackets **[ ]** show that the enclosed group of segments is optional. If a group of segments is optional and may repeat it should be enclosed in brackets first and then braces, **[{ }].**

Example:

MSH..EVN..PID..[{NK1}]..[PV1]..[PV2]..[{AL1}]..[{DG1}]..[{PR1}]..[{GT1}]..[{IN1}]..[ACC]..[UB1]..[UB2]

12.4 HL7 Message Type Partial List (MSH_9_1)

VALUE	DESCRIPTION	HL7 ITEM#
ACK	GENERAL ACKNOWLEDGEMENT	288
ADR	ADT RESPONSE	999999
ADT	ADT MESSAGE	289
ARD	ANCILLARY RPT (DISPLAY)	290
BAR	ADD/CHANGE BILLING ACCOUNT	291
DFT	DETAIL FINANCIAL TRANSACTION	292
DSR	DISPLAY RESPONSE	293
MCF	DELAYED ACKNOWLEDGEMENT	294
MDM	DOCUMENTATION MESSAGE	999998
MFD	MASTER FILE DELAYED ACKNOWLEDGEMENT	
MFK	MASTER FILE ACKNOWLEDGEMENT	999993
MFN	MASTER FILE NOTIFICATION	999994
MFR	MASTER FILE RESPONSE	999992
NMD	NETWORK MANAGEMENT DATA	999995
NMQ	NETWORK MANAGEMENT QUERY	999997
NMR	NETWORK MANAGEMENT RESPONSE	999996
ORF	OBSERV. RESULT/RECORD RESPONSE	295
ORM	ORDER MESSAGE	296
ORR	ORDER ACKNOWLEDGEMENT MESSAGE	297
ORU	OBSERV RESULT/UNSOLICITED	298
OSQ	ORDER STATUS QUERY	299
PGR	PHARMACY DOSE INFORMATION	306
QRY	QUERY	313
RAR	PHARMACY ADMINISTRATION INFORMATION	300
RAS	PHARMACY ADMINISTRATION MESSAGE	301
RDE	PHARMACY ENCODED ORDER MESSAGE	302
RDR	PHARMACY DISPENSE INFORMATION	303
RDS	PHARMACY DISPENSE MESSAGE	304
RER	PHARMACY ENCODED ORDER INFORMATION	307
RGV	PHARMACY GIVE MESSAGE	305
ROR	PHARMACY PRESCRIPTION ORDER RESPONSE	308
RRA	PHARMACY ADMINISTRATION ACKNOWLEDGEMENT	309
RRD	PHARMACY DISPENSE ACKNOWLEDGEMENT	310
RRE	PHARMACY ENCODED ORDR ACKNOWLEDGEMENT	311
RRG	PHARMACY GIVE ACKNOWLEDGEMENT	312
UDM	UNSOLICITED DISPLAY MESSAGE	314

RED= Most commonly used in HL7 Transaction

12.5 HL7 Trigger Event Type Partial List (MSH_9_2)

VALUE	DESCRIPTION	HL7 ITEM#
A01	ADMIT A PATIENT	10
A02	TRANSFER A PATIENT	11
A03	DISCHARGE A PATIENT	12
A04	REGISTER A PATIENT	13
A05	PREADMIT A PATIENT	14
A06	TRANSFER AN OUTPATIENT TO INPATIENT	15
A07	TRANSFER AN INPATIENT TO OUTPATIENT	16
A08	UPDATE PATIENT INFORMATION	17
A09	PATIENT DEPARTING	18
A10	PATIENT ARRIVING	19
A11	CANCEL ADMIT	20
A12	CANCEL TRANSFER	21
A13	CANCEL DISCHARGE	22
A14	PENDING ADMIT	23
A15	PENDING TRANSFER	24
A16	PENDING DISCHARGE	25
A17	SWAP PATIENTS	26
A18	MERGE PATIENT INFORMATION	27
A19	PATIENT, QUERY	28
A20	NURSING/CENSUS APPLICATION UPDATES	29
A21	LEAVE OF ABSENCE - OUT (LEAVING)	30
A22	LEAVE OF ABSENCE - IN (RETURNING)	31
A23	DELETE A PATIENT RECORF	32
A24	LINK PATIENT INFORMATION	33
A25	CANCEL PENDING DISCHARGE	34
A26	CANCEL PENDING TRANSFER	35
A27	CANCEL PENDING ADMIT	36
A28	ADD PERSON INFORMATION	37
A29	DELETE PERSON INFORMATION	38
A30	MERGE PERSON INFORMATION	39
A31	UPDATE PERSON INFORMATION	40
A32	CANCEL PATIENT ARRIVING	41
A33	CANCEL PATIENT DEPARTING	42
A34	MERGE PATIENT INFORMATION - PATIENT ID ONLY	43
A35	MERGE PATIENT INFORMATION - ACCOUNT NUMBER ONLY	44
A36	MERGE PATIENT INFORMATION - PATIENT ID AND ACCOUNT NUMBER	45
A36	MERGE PATIENT INFORMATION - PATIENT ID AND ACCOUNT NUMBER	46
A37	UNLINK PATIENT INFORMATION	47
M01	MASTER FILE NOT OTHERWISE SPECIFIED (FOR BACKWARDS COMPATIBILITY ONLY)	48
M02	MASTER FILE - STAFF PRACTIONER	49
M03	MASTER FILE - TEST/OBSERVATION	50
O01	ORDER MESSAGE	51
O02	ORDER RESPONSE	52
P01	ADD AND UPDATE PATIENT ACCOUNT	53
P02	PURGE PATIENT ACCOUNT	54
P03	POST DETAIL FINANCIAL TRANSACTION	55
P04	GENERATE BILL AND A/R STATEMENTS	56

Q01	IMMEDIATE ACCESS	57
Q02	DEFERRED ACCESS	58
Q03	DEFERRED RESPONSE TO A QUERY	
Q05	UNSOLICITED DISPLAY UPDATE	59
R01	UNSOLICITED TRANSMISSION OF REQUESTED OBSERVATION	60
R02	QUERY FOR RESULTS OF OBSERVATION	61
R03	DISPLAY-ORIENTED RESULTS, QUERY/UNSOL. UPDATE	62
R04	RESPONSE TO QUERY; TRANSMISSION OF REQUESTED OBSERVATION	63

RED= Most commonly used in HL7 Transaction

13.0 HL7 MSH Segment, Message Header:

The MSH segment defines the intent, source, destination, and some specifics of the syntax of a message.

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID (MSH)	R	ID	"MSH"
1	Field Separator (FS)	R	AN	This is used to identify separator char "|"
2	Encoding Characters	R	AN	^ ~ \ &
3	Sending Application (SA)	O	AN	Outbound: User Configurable
4	Sending Facility (SF)	O	AN	Outbound: User Configurable
5	Receiving Application (RA)	O	AN	Outbound: User Configurable
6	Receiving Facility (RF)	O	AN	Option
7	Date/Time of Message (TOM)	O	AN	YYYYMMDDhhmm[ss]
8	Security (SEC)	NU	AN	Not used
9	Message Type (MT)	R	AN	Inbound: ADT or ORM Outbound: ORU- Result Message ACK – General Acknowledgment Message
10	Message Control ID (MCID)	R	AN	LINK Generate Outbound
11	Processing ID (PID)	R	NU	P
12	Version ID (VID)	R	AN	HL7 standard version being used. 2.xx

13.1 HL7 EVN Segment, Event:

Each ADT message sent is associated with an event type.

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID (EVN)	R	ID	"EVN"[HL7TEMPLATE]
1	Event Type Code	R	AN	A01, A02, A03, A08, R01 etc...
2	Date/Time of Event	O	AN	YYYYMMDDhhmm [ss] Date and time of event
3	Date/Time of Planned Event	NU	AN	Not used
4	Event Reason Code	NU	AN	Not used
5	Operator ID	NU	AN	Not used

13.2 HL7 PID Segment, Patient Identification:

Since the PID segment contains permanent identifying and demographic information about a patient, it is used by the applications as the main means of communicating this information.

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID (PID)	R	ID	"PID" [HL7TEMPLATE]
1	Set ID – Patient ID	O	NU	Not used
2	Patient ID (External ID)	O	NU	Not used
3	Patient ID (Internal ID)	R	AN	Medical Record Number (Key)
4	Alternate Patient ID/Tote ID	O	NU	Not used
5	Patient Name	R	AN	LName^FName^MName
6	Mother's Maiden Name	O	NU	Not used
7	Date of Birth	O	N	YYYYMMDD
8	Sex	O	AN	F – female, M – male, U – unknown
9	Patient Alias	O	NU	Not used
10	Race	O	NU	Not used
11	Patient Address	O	AN	Address1^Address2^ City^State^Zip
12	County Code	O	NU	Not used
13	Phone Number – Home	O	N	(###)###-####
14	Phone Number – Business	O	N	(###)###-####x ####
15	Language – Patient	O	NU	Not used
16	Marital Status	O	AN	
17	Religion	O	AN	
18	Patient Account Number	R	AN	Can be Key
19	SSN Number – Patient	O	N	
20	Driver's License Number – Patient	O	NU	Not used
21	Mother's Identification No RX's In PO	O	NU	Not used

13.3 HL7 NK1 Segment, Next of Kin:

This segment contains the information about the patient's relatives or an associated party.

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID (NK1)	R	ID	"NK1" [HL7TEMPLATE]
1	Set ID – Next of Kin	NU	AN	Not used
2	Next of Kin Name	O	AN	
3	Next of Kin Relationship	O	AN	
4	Next of Kin Address	O	AN	Address1^Address2^ City^State^Zip
5	Next of Kin Phone Number	O	AN	

13.4 HL7 AL1 Segment, Patient Allergy:

This segment contains and describes a single patient's allergy information. This information will arrive from user-defined tables

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID (AL1)	R	ID	"AL1"[HL7TEMPLATE]
1	Set ID – Allergy Information	NU	AN	Not used
2	Allergy Type	NU	AN	Not used
3	Allergy Description	R	AN	
4	Allergy Severity	NU	AN	Not used
5	Allergy Reaction	NU	AN	Not used
6	Identification Date	NU	AN	Not used

13.5 HL7 PV1 Segment, Patient Visit:

The PV1 segment is used by Registration/ADT applications. The PV1 segment is used to communicate information on a visit specific basis. This segment can be used to send multiple visit statistic records to the same patient account or single visit records to more than one account. Site must determine the use for this segment

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID (PV1)	R	ID	"PV1" [HL7TEMPLATE]
1	Set ID – Patient Visit	NU	SI	Not used
2	Patient Class	O	AN	I – inpatient, O – outpatient, P – pre-admit, E – emergency
3	Assigned Patient Location	CR	AN	Location^Room^Bed
4	Admission Type	O	AN	
5	Pre-Admit Number	NU	N	Not used
6	Prior Patient Location	O	N	Location^Room^Bed
7	Attending Doctor	R	AN	Doctor ID^Doctor Full Name
8	Referring Doctor	O	AN	Doctor ID^Doctor Full Name
9	Consulting Doctor	NU	N	Not used
10	Hospital Service	O	AN	
11	Temporary Location	NU	N	Not used
12	Pre-Admit Test Indicator	NU	N	Not used
13	Re-Admission Indicator	NU	N	Not used
14	Admit Source	O	AN	
15	Ambulatory Status	NU	N	Not used
16	VIP Indicator	O	AN	Y or N
17	Admitting Doctor	O	AN	Doctor ID^Doctor Full Name
18	Patient Type	O	AN	Site Specification
19	Visit Number	NU	N	
20	Financial Class	O	AN	
21	Charge Price Indicator	NU	AN	Not used
22	Courtesy Code	NU	AN	Not used
23	Credit Rating	NU	N	Not used
24	Contract Code	NU	N	Not used

25	Contract Effective Date	NU	N	Not used
26	Contract Amount	NU	N	Not used
27	Contract Period	NU	N	Not used
28	Interest Code	NU	N	Not used
29	Transfer to Bad Debt Code	NU	N	Not used
30	Transfer to Bad Debt Date	NU	N	Not used
31	Bad Debt Agency Code	NU	N	Not used
32	Bad Debt Transfer Amount	NU	N	Not used
33	Bad Debt Recovery Amount	NU	N	Not used
34	Delete Account Indicator	NU	N	Not used
35	Delete Account Date	NU	N	Not used
36	Discharge Disposition	O	AN	
37	Discharge To Location	NU	N	Not used
38	Diet Type	NU	N	Not used
39	Servicing Facility	O	AN	
40	Bed Status	NU	N	Not used
41	Account Status	O	AN	
42	Pending Location	NU	N	Not used
43	Prior Temporary Location	NU	N	Not used
44	Admit Date/Time	R	AN	YYYYMMDDhhmm[ss]
45	Discharge Date/Time	CR	AN	YYYYMMDDhhmm[ss]
46	Current Patient Balance	NU	N	Not used
47	Total Charges	NU	N	Not used
48	Total Adjustments	NU	N	Not used
49	Total Payments	NU	N	Not used
50	Alternate Visit ID	NU	N	Not used

13.6 HL7 PV2 Segment, Patient Visit Additional:

The PV2 segment is a continuation of visit-specification information contained in the PV1 segment.

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID (PV2)	R	ID	"PV2"[HL7TEMPLATE]
	Fields 1-7	NU		Not used
8	Expected Admit Date/Time	O	AN	YYYYMMDDhhmm[ss]
	Fields 9-37	NU		Not used

13.7 HL7 DG1 Segment, Diagnosis Information:

The DG1 segment contains information about a patient's diagnosis

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID (DG1)	R	ID	"DG1"[HL7TEMPLATE]
1	Set ID DG1	O	ID	
2	Diagnosis Coding Method	O	AN	Not used
3	Diagnosis Code	O	AN	Coding System
4	Diagnosis Description	R	AN	
5	Diagnosis Date/Time	O	AN	
6	Diagnosis Type	O	NU	Not used
	Fields 7-19	NU		Not used

13.8 HL7 ACC Segment, Accident Information:

The ACC segment contains information about a patient that has been involved in an accident.

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID (ACC)	R	ID	"ACC"[HL7TEMPLATE]
1	Accident Date/Time	O	AN	YYYYMMDDhhmm[ss]
2	Accident Code	O	AN	Accident code^Description
3	Accident Location	O	AN	Accident Place
4	Auto Accident State	NU	AN	Not used
5	Accident Job Related Indicator	NU	AN	Not used
6	Accident Death Indicator	NU	AN	Not used

13.9 HL7 MRG Segment, Merge Patient Information:

The MRG segment provides receiving applications with information necessary to initiate the merging of patient data as well as groups of records. It is intended that this segment be used throughout the standard to allow the merging of registration, accounting, and clinical records within specific applications

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID (MRG)	R	ID	“MRG” [HL7TEMPLATE]
1	Prior Patient ID - Internal	R	AN	Medical Record Number
2	Prior Alternate Patient ID	NU	AN	Not used
3	Prior Patient Account Number	NU	AN	Not used
4	Prior Patient ID - External	NU	AN	Not used
5	Prior Visit Number	NU	AN	Not used
6	Prior Alternate Visit ID	NU	AN	Not used
7	Prior Patient Name	NU	AN	Not used

13.10 HL7 IN1 Segment, Insurance Plan:

The IN1 segment contains insurance policy coverage information. This information is used to properly produce insurance invoicing

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID (IN1)	R	ID	"IN1"[HL7TEMPLATE]
1	Insurance Plan ID	R	AN	
2	Insurance Company ID	R	AN	
3	Insurance Company Name	O	AN	
4	Insurance Company Address	O	AN	Address1^Address2^ City^State^Zip
5	Insurance Co. Contact Person	NU	AN	Not used
6	Insurance Co. Phone Number	O	AN	
7	Group Number	O	AN	
8	Group Name	O	AN	
9	Insured's Group Emp ID	O	AN	
10	Insured's Group Emp Name	O	AN	
11	Plan Effective Date	O	AN	YYYYMMDD
12	Plan Expiration Date	NU	AN	Not used
13	Authorization Information	O	AN	
14	Plan Type	O	AN	
15	Name Of Insured	O	AN	
16	Insured's Relationship To Patient	O	AN	
17	Insured's Date Of Birth	O	AN	YYYYMMDD
18	Insured's Address	O	AN	Address1^Address2^ City^State^Zip
19	Assignment Of Benefits	NU	AN	Not used
20	Coordination Of Benefits	NU	AN	Not used
21	Coord. Of Ben. Priority	NU	AN	Not used
22	Notice Of Admission Flag	NU	AN	Not used
23	Notice Of Admission Date	NU	AN	Not used
24	Report Of Eligibility Flag	NU	AN	Not used
25	Report Of Eligibility Date	NU	AN	Not used
26	Release Information Code	NU	AN	Not used
27	Pre-Admit Cert (PAC)	NU	AN	Not used
28	Verification Date/Time	NU	AN	Not used
29	Verification By	NU	AN	Not used
30	Type Of Agreement Code	NU	AN	Not used
31	Billing Status	O	AN	
32	Lifetime Reserve Days	NU	AN	Not used
33	Delay Before L.R. Day	NU	AN	Not used
34	Company Plan Code	O	AN	
35	Policy Number	O	AN	
36	Policy Deductible	NU	AN	Not used
37	Policy Limit - Amount	NU	AN	Not used
38	Policy Limit - Days	NU	AN	Not used
39	Room Rate - Semi-Private	NU	AN	Not used
40	Room Rate - Private	NU	AN	Not used
41	Insured's Employment Status	O	AN	
42	Insured's Sex	O	AN	F – female, M – male, U – unknown

43	Insured's Employer Address	O	AN	Address1^Address2^ City^State^Zip
44	Verification Status	NU	AN	Not used
45	Prior Insurance Plan ID	NU	AN	Not used
46	Coverage Type	NU	AN	Not used
47	Handicap	NU	AN	Not used
48	Insured's ID Number	O	AN	

13.11 HL7 ORC Segment, Common Order:

The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). The ORC segment is required in the Order (ORM) message. ORC is mandatory in Order Acknowledgment (ORR) messages if an order detail segment is present, but is not required otherwise.

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID_ ORC	R	ID	"ORC"[HL7TEMPLATE]
1	Order Control	O	ID	LINKMED KEEP
2	Placer Order Number	R	EI	LINKMED KEEP
3	Filler Order Number	R	EI	LINKMED KEEP
4	Placer Group Number	NU	EI	LINKMED KEEP
5	Order Status	O	ID	LINKMED KEEP
6	Respond flag	O	ID	LINKMED KEEP
7	Quantity/Timing	O	TQ	LINKMED KEEP
8	Parent	NU	CM	LINKMED KEEP
9	Date/Time of transaction	O	TS	LINKMED KEEP
10	Entered By	O	XCN	LINKMED KEEP
11	Verified By	NU	XCN	LINKMED KEEP
12	Ordering Provider	R	XCN	
13	Enterer's Location	NU	PL	
16	Order Control Code Reason	O	CE	

13.12 HL7 OBR Segment, Observation Request:

The Observation Request (OBR) segment is used to transmit information specific to an order for a diagnostic study or observation, physical exam, or assessment.

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID_ OBR	R	ID	"OBR"[HL7TEMPLATE]
1	Set ID_OBR	O	SI	LINKMED KEEP
2	Placer Order Number	R	EI	LINKMED KEEP
3	Filler Order Number	R	EI	2nd Key for Order
4	Universal Service ID	R	CE	
5	Priority	O	ID	LINKMED KEEP
6	Requested Date/Time	NU	TS	LINKMED KEEP
7	Observation Date/Time	NU	TS	LINKMED KEEP
8	Observation End Date/Time	NU	TS	LINKMED KEEP

9	Collection Volume	NU	CQ	LINKMED KEEP
10	Collector Identifier	O	XCN	LINKMED KEEP
11	Specimen Action Code	NU	ID	LINKMED KEEP
12	Danger Code	R	CE	
13-15	OBR_13 to OBR_15	NU	ST,TS,CM	LINKMED KEEP
16	Ordering Provider	O	XCN	LINKMED KEEP
17	Call Back Phone Number	NU	ID	LINKMED KEEP
18	Placer Field 1	O	CM	LINKMED KEEP
19	Placer Field 2	O	TQ	LINKMED KEEP
20	Filler Field 1	O	XCN	
21	Filler Field 2	O	CM	
22	Results Report Status Change Date Time	O	ID	LINKMED KEEP
23	Change To Practice	O	CE	LINKMED KEEP
24	Diagnostic Service Section ID	O	CM	LINKMED KEEP
25	Result Status	R	CM	Outbound: F, A or P
26	Parent Result	NU	CM	LINKMED KEEP
27	Quantity/Timing	R	CM	LINKMED KEEP
28	Result Copies To	O	ID	LINKMED KEEP
29	Parent	NU	SI	LINKMED KEEP
30	Transportation Mode	NU	EI	LINKMED KEEP
31	Reason For Study	R	EI	
32	Principal Result Interpreter	R	CE	
33	Assistant Result Interpreter	R	ID	
34	Technician	O	TS	LINKMED KEEP

13.13 HL7 OBX Segment, Observation/Result (ORU Outbound Message Only):

The OBX segment is used to transmit a single observation or observation fragment. It represents the smallest indivisible unit of a report.

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID_ OBX	R	ID	"OBX" OUTBOUND ONLY
1	Set ID - OBX	O	SI	LINKMED OUTPUT TX=Text or FT=Formatted Text
2	Value Type	R	ID	LINKMED OUTPUT
3	Observation Identifier	R	CE	LINKMED OUTPUT
4	Observation Sub-ID	NU	ST	LINKMED OUTPUT
5	Observation Value	O	**Report Body**	LINKMED OUTPUT Results in multiple OBX Segments
11	Observation Result Status	O	ID	P, F or A
14	Date/Time of Observation	O	IS	YYYYMMDD hh:mm

R = Required, O = Optional, NU = Not Used, ID = Segment Identification, LINKMED KEEP=Input value is kept in LINK intermediate database

13.14 TXA Transcription Document Header Segment

The TXA segment contains information specific to a transcribed document but does not include the text of the document. The message is created as a result of a document status change. This information is used to update other healthcare systems to identify reports that are available in the transcription system.

SEQ	ELEMENT NAME	REQ	TYPE	COMMENTS
0	Segment ID	R		"TXA"
1	Set ID	R	SI	
2	Document Type	O	IS	Document Type Code
3	Document Content Presentation	O	ID	
6	Dictation Date/Time	R	TS	
7	Transcription Date/Time	R	TS	
8	Edit Date/Time	R	TS	
9	Originator Code/Name	O	XCN	
11	Transcriptionist Code/Name	O	XCN	
12	Unique Document Number	R	TI	
17	Document Completion Status	R	ID	
19	Document Availability Status	O	ID	
23	Authentication Person (Component)	O	XCN	

13.15 X01, TRANSLINK™ Interface Engine Segment:

The X01 segment is used by the TRANSLINK™ Interface Engine to parse multiple or repeating HL7 message and is a require segment.

SEQ	ELEMENT NAME	REQ	XML	COMMENTS
0	Segment ID	R		"X01"[OUTHL7TEMPLATE2]
1	X01_1	R	Multiple HL7 Segments Parser	File and Field Rules Mapping
2	X01_2 to X01_10	O		Use as Needed

13.16 Glossary

Shortcut	
R	Required
O	Optional
NU	Not Used
LINKMEDKEEP	Input value is kept in TRANSLINK™ intermediate database
Data Type	
AN	ANSI American National Standards Institute.
CE	Coded Element data type. This data type transmits codes and the text associated with the code.
CM	Composite data type. A field that is a combination of other meaningful data fields. Each portion is

	called a component.
EI	Entity identifier data type.
ID	Coded Value data type. The value of such a field follows the formatting rules for a ST field except that it is drawn from a table of legal values.
PL	Patient location data type.
SI	Sequence ID data type. A positive integer in the form of a NM field.
ST	String data type. String Data is left justified with trailing blanks optional.
TQ	Timing/Quantity data type. Describes when a service should be performed and how frequently.
TS	Time Stamp data type. Contains the exact time of an event, including the date and time.
XCN	Extended composite ID number and name data type. In version 2.3, use instead of the CN data type.

14.0 HL7 ADT Transactions:

INBOUND stream HL7 ADT/ORDER Messages via TCP/IP from the HIS are received by the TRANSLINK™ TCP/IP Receiver, The TCP/IP Receiver processed those files to HL7 message, then placed in the INBOUND Receive folder accessible by the TRANSLINK™ Interface Engine for data transformation to a pre-defined format

14.1 Example of ADT Transaction:

ADMITTANCE: MSH..EVN..PID..[{NK1}]..[PV1]..[PV2]..[{AL1}]..[{DG1}]..{IN1}..[ACC]

14.2 Sample of HL7 ADT Message:

MSH|^~\@|PMS|LPI|||200303031503||ADT^A08|CHPFQP03|P|2.3
EVN|A08|200303031300|20030225||WIGGIA
PID|||00169912||DOE^JANE^F^^^^L||19410501|F||1|37229
DALZELL^^PALMDALE^CA^935500000^^^^019||(661)947-
3093^PRN^PH^^^661^9473093|||M|CAT|3000318786|386501913
PV1|0001|I|MED^201^2|U|||4432^TOFT MARY|||MED||||RB|||4432^TOFT
MARY|G|003000318786|M|||||||||||||||A|HOME||||||200302251652|200303031300
NK1|0001|DOE^JOHN^M^^^^L|U|37229 DALZELL^^PALMDALE^CA^935500000|(805)947-
3093^PRN^^^^805^9473093||EMCON||||||||||||||||||||||||||||||
NK1|0002|DISABLED 1996^^^^^^L|||||PTEMP|||||||||||||||||||||||||||||
IN1|0001|B73|040|BX UFCW|PO BOX 60007^^LOS ANGELES^CA^90060||(714)220-
2297^PRN^^^^714^2202297~(800)274-
7767^URP|||1231EE|RETIRED||||O|DOE^JOHN^M^^^^L|U|19390919|37229
DALZELL^^PALMDALE^CA^935500000|||2|||||||||||||383463246|||||||M||Y||||
IN1|0002|A03||MEDICARE/MUTUAL|P.O. BOX 1602^^OMAHA^NE^68101||||||DISABLED
1996||||M|DOE^JANE^F^^^^L|S|19410501|37229
DALZELL^^PALMDALE^CA^935500000|||1|||||||||||||386501913A|||||||F||Y||||
GT1|0001|386501913^^^LPI^GN|DOE^JANE^F||37229 DALZELL^^PALMDALE^CA^935500000| (661)947-
3093^PRN^^^^661^9473093||19410501||P|S|386501913||||DISABLED 1996|||||||||||||||||||||||||||||||||||DISABLED
1996||||

DISCHARGE: MSH..EVN..PID..[PV1]

15.0 HL7 ORDER ORM Transaction:

15.1 Example of ORDER Transactions:

MSH..PID..[PV1]..[PV2]..[{AL1}]..ORC..OBR

INBOUND stream HL7 ADT/Order Messages via TCP/IP from the HIS are received by the TRANSLINK™ TCP/IP Receiver, The TCP/IP Receiver processed those files to HL7 message, then placed in the INBOUND Receive folder accessible by the TRANSLINK™ Interface Engine for data transformation to a pre-defined format.

15.2 Example HL7 Order Message (ORM):

MSH|^~\&|RIS|WB0|||200303211147||ORM^O01|1|P|2.3|
PID||000000123456|000000123456|000000149131|PATIENT^TEST^E^^^||196407080000|F|||44610 APACHETRAILS^^BROOKLYN^WI^53521||6082222222|6082222222|Y^SPANISH|||016037033446|888888888|||W|
PV1|||^^|||||||||||||||000000149131|||||||||||||||||WB0|
AL1|||BANANA|
ORC|SC|00005^001|479844||CM||^^^200303211143^^R^^ROUTINE|||RAD||108746^TOIBER^FREDY, M.D.^^^^|BD|||^|
OBR||00005^001|479844|MAM^3503^MAMMOGRAMBILATERAL^76091|||||RAD||Y|||^^^^|108746^TOIBER ^M.D., FREDY^^^^|||^MG|||||MG|||1^^^200303211143^^R^^ROUTINE|||AM|^^^^CURRENT DX|

16.0 OUTBOUND HL7 Massage:

16.1 Example HL7 Result (ORU) Message:

HL7 ORDER Input:

MSH|^~\&|RIS|WB0|||200303211147||ORM^O01|1|P|2.3|
PID||000000123456|000000123456|000000149131|PATIENT^TEST^E^^^||196407080000|F|||44610 APACHETRAILS^^BROOKLYN^WI^53521||6082222222|6082222222|Y^SPANISH|||016037033446|888888888|||W|
PV1|||^^|||||||||||||||000000149131|||||||||||||||||WB0|
AL1|||BANANA|
ORC|SC|00005^001|479844||CM||^^^200303211143^^R^^ROUTINE|||RAD||108746^TOIBER^FREDY, M.D.^^^^|BD|||^|
OBR||00005^001|479844|MAM^3503^MAMMOGRAMBILATERAL^76091|||||RAD||Y|||^^^^|108746^TOIBER ^M.D., FREDY^^^^|||^MG|||||MG|||1^^^200303211143^^R^^ROUTINE|||AM|^^^^CURRENT DX|

HL7 Result Output:

MSH|^~\&|LINKMED|WB0||RIS|20030331101132||ORU^R01|E1049134292093|P|2.3|
PID||000000123456|000000123456|000000149131|PATIENT^TEST^E^^^||196407080000|F|||44610 APACHE TRAILS^^BROOKLYN^WI^53521||(608)222-2222|(608)222-2222|Y^SPANISH|||016037033446|888888888|||W|
PV1|||^^|||||||||||||||000000149131|||||||||||||||||WB0|
AL1|||BANANA|
ORC|SC|00005^001|479844||CM||^^^^|||||108746^TOIBER^FREDY, M.D.^^^^|BD|||
OBR||00005^001|479844| MAM^3503^MAMMOGRAM BILATERAL^76091|||200303211143|||RAD||Y||||108746^TOIBER^M.D., FREDY^^^^|||^MG|why 1||||MG|F||1^^^200303211143^^R^^ROUTINE||||CURRENT DX|577155|577783|
OBX|1|TX|MAM3503&BODY||Technique: report below are made up text ~||||||F|||200303311011|
OBX|2|TX| MAM3503&BODY||The following imaging sequences were performed:||||||F|||200303311011|
OBX|3|TX|MAM3503&BODY|| craniocaudal views and mediolateral oblique views. ~~||||||F|||200303311011|
OBX|4|TX|MAM3503&BODY||Findings: ~ The breasts are extremely dense, which lowers the sensitivity of||||||F|||200303311011|
OBX|5|TX|MAM3503&BODY||mammography. No mass is present in the breasts. No suspicious||||||F|||200303311011|

OBX|6|TX|MAM3503&BODY||microcalcification is present in the breasts.~~||||||F|||200303311011|
OBX|7|TX|MAM3503&IMP||Impression: ~No mammographic evidence of malignancy. ~Dense tissue could||||||F|||200303311011|
OBX|8|TX|MAM3503&IMP||obscure a lesion. ~Decision whether or not to biopsy at this time should be||||||F|||200303311011|
OBX|9|TX|MAM3503&IMP||based on clinical criteria. ~BI-RADS Category 1: Negative. ~~||||||F|||200303311011|

16.2 Example of Text Report:

Report Type: MR
Report Code: XR
Sending Facility: LINKMED
Transcribed Date and Time: 200302140057
Dictated Date and Time: 200302140837
Date of Service: 20030113
Date of Visit:1/13/2003
Location Code:
Patient MRN: 226008
Patient Billing Number: 2003845
Patient Visit ID:2
Patient Last Name: DOE
Patient First Name: JANE
Patient Middle Initial: F
Patient DOB:03/02/1941
Patient Sex: F
Patient SSN: 018-00-4567
Attending Physician: 0000200000010019
Referring Physician ID:
Referring Physician First Name:
Referring Physician Last Name:
Referring Physician Middle Initial:
Dictating Physician ID: 2
Transcriptionist Initials:
Job ID: 2536092
Addendum: A
<EndOFHeader>
CHEST (EPA AND LATERAL VIEWS)

CLINICAL HISTORY: Follow-up for pneumonia.

Comparison is made to the patient's prior examination of 04 January 2003.

Focal infiltrative process described in the right middle lobe is unchanged from the patient's prior study. Additionally, there is a zone of somewhat band-type density at the right base posteriorly. Perhaps this process represents parenchymal scarring or chronic atelectasis in view of its unchanged appearance in the nine day interval since the patient's prior study. Left lower lobe substantially free of focal infiltrate.

CONCLUSION:
STABLE APPEARANCE. THIS MAY REPRESENT THE PATIENT'S NORMAL STATUS. INFILTRATE IN THE RIGHT MIDDLE LOBE AS WELL AS IN THE RIGHT LOWER LOBE AS DESCRIBED ABOVE WHICH COULD REPRESENT PARENCHYMAL SCARRING.

HILLARY CLINTON, M.D.
Job #: 2576
Transcription Date: 01/13/2003
Dictation Date: 01/13/2003

This document has been electronically signed by Bill Clinton, M.D. on 01/14/2003 at 7:33:24 AM PST
Verification: 227831320030114073324
****

CHEST EPA AND LATERAL VIEWS

CLINICAL HISTORY: Cough congestion and fever for the last month.

No prior chest radiographs are available for correlation.

FINDINGS: There is a focal area of airspace consolidation identified in the region of the right middle lobe laterally. The heart size is within normal limits. The lungs are somewhat hyperinflated. No effusions are evident. The osseous structures are intact.

IMPRESSION:
FOCAL AREA OF AIRSPACE CONSOLIDATION IDENTIFIED WITHIN THE LATERAL ASPECT OF THE RIGHT MIDDLE LOBE AS DESCRIBED ABOVE. THIS COULD REPRESENT A FOCAL AREA OF PNEUMONIA.

DR. ROONEY HAS BEEN GIVEN A VERBAL REPORT OF THIS EXAMINATION AT 9:25 A.M. ON 1/4/2003.

CHRISTOPHER LLOYD, M.D.
Job #: 2258
Transcription Date: 01/04/2003
Dictation Date: 01/04/2003

This document has been electronically signed by Christopher Lloyd, M.D. on 01/04/2003 at 1:11:35 PM PST
Verification: 221829720030104131135
****
ADDENDUM:

Comparison is made with chest films of 04 January 2003 and 13 January 2003 with prior study from My Doctor Clinic dated 25 May 2000.

The area of infiltrate in the right lower lobe was not present on the prior study and presumably represents an area of acute infiltrate. Continued follow-up is recommended until there has been clearing.

MICHAEL GEORGE, M.D.
Job #: 2014
Transcription Date: 02/14/2003
Dictation Date: 02/14/2003

This document has been electronically signed by Bill Clinton, M.D. on 02/14/2003 at 2:44:11 PM PST
Verification: 253609220030214144411

16.3 Example of HL7 Result Message (ORU) from the above text Report:

MSH|^~\&|LINKMED|DIS|SourceRAD|2|200303191529||ORU^R01|20030319152935000|P|2.4
PID|||226008||DOE^JANE^F||19410302|F|||||||||2003845|018004567|
PV1||O|||||^^^|^^^|||||||||||2
OBR||0000200000010019||XR^MR|||||||||||^^^|||||||||||||||2||||20030113
OBX|1|TX|1|| ||||||A||||||
OBX|2|TX|1||CHEST (EPA AND LATERAL VIEWS)||||||A||||||
OBX|3|TX|1|| ||||||A||||||
OBX|4|TX|1||CLINICAL HISTORY: Follow-up for pneumonia.||||||A||||||
OBX|5|TX|1|| ||||||A||||||
OBX|6|TX|1||Comparison is made to the patient's prior examination of 04 January 2003.||||||A||||||
OBX|7|TX|1|| ||||||A||||||
OBX|8|TX|1||Focal infiltrative process described in the right middle lobe is unchanged||||||A||||||
OBX|9|TX|1||from the patient's prior study. Additionally, there is a zone of somewhat||||||A||||||

OBX|10|TX|1||band-type density at the right base posteriorly. Perhaps this process||||||A||||||
OBX|11|TX|1||represent parenchymal scarring or chronic atelectasis in view of its||||||A||||||
OBX|12|TX|1||unchanged appearance in the nine day interval since the patient's prior||||||A||||||
OBX|13|TX|1||study. Left lower lobe substantially free of focal infiltrate. ||||||A||||||
OBX|14|TX|1|| ||||||A||||||
OBX|15|TX|1||CONCLUSION:||||||A||||||
OBX|16|TX|1||STABLE APPEARANCE. THIS MAY REPRESENT THE PATIENT'S NORMAL STATUS. ||||||A||||||
OBX|17|TX|1||INFILTRATE IN THE RIGHT MIDDLE LOBE AS WELL AS IN THE RIGHT LOWER LOBE AS||||||A||||||
OBX|18|TX|1||DESCRIBED ABOVE WHICH COULD REPRESENT PARENCHYMAL SCARRING.||||||A||||||
OBX|19|TX|1|| ||||||A||||||
OBX|20|TX|1||HILLARY CLINTON, M.D.||||||A||||||
OBX|21|TX|1||Job #: 2576||||||A||||||
OBX|22|TX|1||Transcription Date: 01/13/2003||||||A||||||
OBX|23|TX|1||Dictation Date: 01/13/2003||||||A||||||
OBX|24|TX|1||This document has been electronically signed by Myron Schneider, M.D. on||||||A||||||
OBX|25|TX|1||01/14/2003 at 7:33:24 AM PST Verification: 2278313200301140733 24||||||A||||||
OBX|26|TX|1||**********||||||A||||||
OBX|27|TX|1||CHEST EPA AND LATERAL VIEWS ||||||A||||||
OBX|28|TX|1|| ||||||A||||||
OBX|29|TX|1||CLINICAL HISTORY: Cough, congestion and fever for the last month.||||||A||||||
OBX|30|TX|1|| ||||||A||||||
OBX|31|TX|1||No prior chest radiographs are available for correlation. ||||||A||||||
OBX|32|TX|1|| ||||||A||||||
OBX|33|TX|1||FINDINGS: There is a focal area of airspace consolidation identified in||||||A||||||
OBX|34|TX|1||the region of the right middle lobe laterally. The heart size is within||||||A||||||
OBX|35|TX|1||normal limits. The lungs are somewhat hyperinflated. No effusions are||||||A||||||
OBX|36|TX|1||evident. The osseous structures are intact.||||||A||||||
OBX|37|TX|1|| ||||||A||||||
OBX|38|TX|1||IMPRESSION:||||||A||||||
OBX|39|TX|1||FOCAL AREA OF AIRSPACE CONSOLIDATION IDENTIFIED WITHIN THE LATERAL ASPECT||||||A||||||
OBX|40|TX|1||OF THE RIGHT MIDDLE LOBE AS DESCRIBED ABOVE. THIS COULD REPRESENT A FOCAL||||||A||||||
OBX|41|TX|1||AREA OF PNEUMONIA.||||||A||||||
OBX|42|TX|1|| ||||||A||||||
OBX|43|TX|1||DR. ROONEY HAS BEEN GIVEN A VERBAL REPORT OF THIS EXAMINATION AT 9:25||||||A||||||
OBX|44|TX|1||A.M. ON 1/4/2003.||||||A||||||
OBX|45|TX|1|| ||||||A||||||
OBX|46|TX|1|| CHRISTOPHER LLOYD, M.D.||||||A||||||
OBX|47|TX|1||Job #: 2258||||||A||||||
OBX|48|TX|1||Transcription Date: 01/04/2003||||||A||||||
OBX|49|TX|1||Dictation Date: 01/04/2003||||||A||||||
OBX|50|TX|1|| ||||||A||||||
OBX|51|TX|1||This document has been electronically signed by Christopher Lloyd,||||||A||||||
OBX|52|TX|1||M.D. on 01/04/2003 at 1:11:35 PM PST Verification: 2218297200301041311 35||||||A||||||
OBX|53|TX|1|| **********||||||A||||||
OBX|54|TX|1||ADDENDUM:||||||A||||||
OBX|55|TX|1|| ||||||A||||||
OBX|56|TX|1||Comparison is made with chest films of 04 January 2003 and 13 January||||||A||||||
OBX|57|TX|1||2003 with prior study from Browne-McHardy Clinic dated 25 May 2000.||||||A||||||
OBX|58|TX|1|| ||||||A||||||
OBX|59|TX|1||The area of infiltrate in the right lower lobe was not present on the||||||A||||||
OBX|60|TX|1||prior study and presumably represents an area of acute infiltrate. ||||||A||||||
OBX|61|TX|1||Continued follow-up is recommended until there has been clearing. ||||||A||||||
OBX|62|TX|1|| ||||||A||||||
OBX|63|TX|1|| ||||||A||||||
OBX|64|TX|1||MICHAEL GEORGE, M.D.||||||A||||||
OBX|65|TX|1||Job #: 2014||||||A||||||
OBX|66|TX|1||Transcription Date: 02/14/2003||||||A||||||

OBX|67|TX|1||Dictation Date: 02/14/2003||||||A||||||
OBX|68|TX|1|| ||||||A||||||
OBX|69|TX|1||This document has been electronically signed by Bill Clinton, M.D. on||||||A||||||
OBX|70|TX|1||02/14/2003 at 2:44:11 PM PST Verification: 25360922003021414441||||||A||||||

16.4 Example of MDM Documentation Message Output:

MSH|^~\&|LINKMED|STM|OCF|STM|200310301710||MDM^T02|10769531|P|2.3
EVN|T02|200310301710
PID|||123456||DOE^JOHN||191110190000|||||||||||
PV1|||||||||||||||||||||||||||||||||||||||200310161024|200310161024
TXA||STMRA^AnyHospitalRadiology|TX|||200310160927|200310161711|200310271502|12345||HRT|10769531|||||PA||AV||||
OBX|1|TX|||HISTORY: Left kidney stone.~~CT ABDOMEN WITHOUT CONTRAST KIDNEY STONE PROTOCOL~~Compared to a CT of 10/14/2003.~~TECHNIQUE: Five-millimeter spiral sections obtained through the abdomen without IV or oral contrast.~~FINDINGS: Fibrotic changes, with honeycomb pattern, are seen in the lung bases. The liver, spleen, pancreas, gallbladder, and adrenal glands are unremarkable. The right kidney is normal and there is no right hydronephrosis. There is moderate left pyeloureteral caliectasis. ~~IMPRESSION: Consistent with moderately high-grade obstruction of the left kidney. Interstitial fibrosis with honeycomb pattern in the lung bases. ~~CT PELVIS WITHOUT CONTRAST KIDNEY STONE PROTOCOL~~TECHNIQUE: Five-millimeter spiral sections obtained through the pelvis without IV or oral contrast.~~FINDINGS: The patient has a rather tortuous left ureter which is difficult to trace into the pelvis with accuracy. Although the proximal left ureter and left renal pelvis are dilated and show evidence of urinary tract obstruction, the distal ureter does not appear particularly dilated and I cannot identify any convincing left ureteral calculi.~~ADDENDUM~~A few diverticula are seen along the course of the rectosigmoid colon. The other pelvic organs are unremarkable. ~~IMPRESSION: Scattered diverticulosis. No convincing etiology identified for the left ureteral obstruction.~~~~~_____~JOHN DOE, MD~~DD:10/16/2003 09:27 MT DT:10/16/2003 17:11 MT DE:10/27/2003 15:02 MT~CH/18SS0/18MS8/24SJ2 JOB:10769531/ REV:JSA102703~WT:88 ALIAS:STMRR^Any Hospital Radiology PAN: MR:123456 AUTH:12345 ADM:10/16/2003 10:24 DIS:10/16/2003 10:24 CC:||||||P

17.0 System Requirement:

Minimum		Recommended
600 MHz CPU		1+ GHz CPU
128 MB RAM		256+ MB RAM
Hard Disk Drive Capacity will depend on users data storage requirements		Hard Disk Drive Capacity will depend on users data storage requirements
CD-ROM 16X		CD-ROM 40X
* 56K baud modem min (Optional)		* 56K baud modem min (Optional)
* Semi/Dedicated Telephone line (Optional)		* Semi/Dedicated Telephone line (Optional)
* PCAnywhere 10 (Optional)		* PCAnywhere 10 (Optional)
Windows 98 / Me Windows NT, 2000 or XP Pro+ SP5 (or later) for Windows NT+ SP2 (or later) for Windows 2000		Windows NT, 2000 or XP Pro+ SP5 (or later) for Windows NT+ SP2 (or later) for Windows 2000
10/100 LAN Card		10/100 LAN Card

*Dial-up capabilities are only required for LINK Medical remote support. If a connection can be established via the internet, a RAS connection or some other direct connection, the modem may be omitted. The user will be responsible for all security related configuration issues in this regard.

18.0 Support:

Help desk and remote access support available M-F 09:00AM - 6:00PM USEST.
Optional, 24/7 support also available.
Professional services to help you speed time to production or solve particularly complex problems.
LINK provides a comprehensive range of installation and support services directly to vendors who wish to out source their integration requirements.

18.1 Training:

LINK Medical offers a variety of training courses ranging from a five hour, in-depth review of the tool-kit to an intense three-day training course for a knowledgeable user.

18.2 Introduction to LINKTools®:

Intense, five hour, on-line session covers all aspects of the tools and provides a user with a solid understanding of how LINKTools® can be applied and what configuration options are available. A knowledgeable user may be able to undertake a relatively standard interface on his/her own (For example, a standard HL7 ADT interfaces) following this course. Using NetMeeting, the user is able to follow-on, ask questions relative to their own unique requirements, experiment and learn in a one-on-one session with the trainer while avoiding any associates travel expense and time.

18.3 LINKTools® In-depth:

For users who intend to undertake interfaces to a wide range of systems and use the LINKTools® IDK to its fullest extent; we recommend that the user consider the more in-depth, three-day training courses. This course can be provided at LINK's facility or on-site, depending on the user's preference.

NOTE: *For potential user's who are unsure as to which training option to choose, you may elect to take the short course first and then follow-up, based on your comfort level and at your discretion, with the more in-depth course. LINK will discount the price of the in-depth course by the cost of the on-line course, making this a NO-RISK training alternative.*

18.4 Support contact:

Main Phone: US and North America:	**781-453-0300**
International Caller dial:	**001+ 781-453-0300**
Mon - Fri : 9:00 AM to 6:00 PM EST Optional 7/24 Available E-mail: Support@linkmed.com	

19.0 Check List:

1- After installation of the TRANSLINK please verifies the following in the installation folder. There are seven default folders installed into the TRANSLINK™ Interface folder they are:

1- BACKUP
2- OrderDB and ResultUDB (Database)
3- OrderR (Inbound Input)
4- OrderS (Inbound Output)
5- ResultR (Outbound Input)
6- ResultL (Outbound Unmatched Input)
7- ResultS (Outbound Output)

2- Make sure the LTMANAGEORDER.INI is correctly set to reflect the duration of record stored in the intermediate database before purge (Default 30 days). Using notepad locates and opens the LTMANAGEORDER.INI. The following is the default setting of TRANSLINK™ ADT

```
[LTMANAGE]
  archive_directory=C: \TRANSLINKA\backup
  rule_file=C:\TRANSLINKA\orderlnk.mpr,30
  del_file=C:\TRANSLINKA\backup\orderR\*.ord,30
  del_file=C:\TRANSLINKA\backup\orderS\*.XML,30
  del_file=C:\TRANSLINKA\backup\ResultR\*.txt,30
  del_file=C:\TRANSLINKA\backup\ResultL\*.lin,30
  del_file=C:\TRANSLINKA\backup\ResultS\*.sen,30
  del_file=C:\TRANSLINKA\l*.log,1
  mode=auto,""
```

3- Make sure the TCP/IP communication configuration has the right port, IP address and HL7 version number.

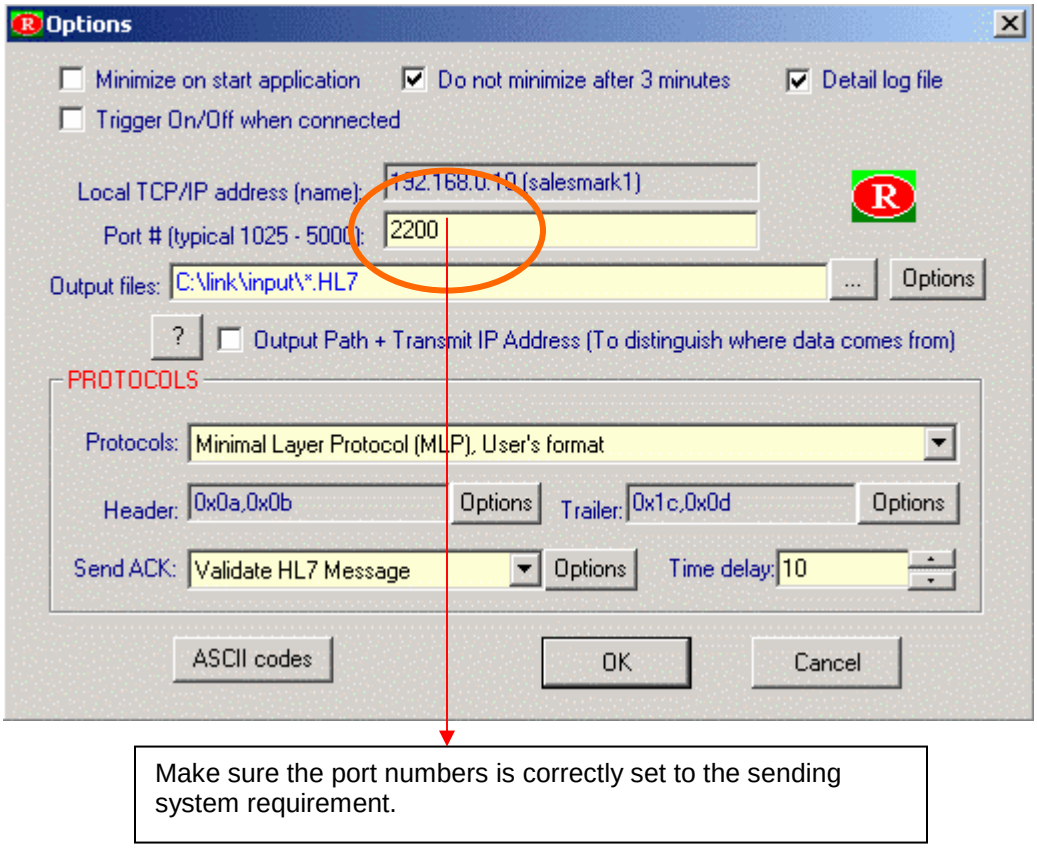
4- Call LINK Tech Support for Result/Report setup help at 888-893-0900 if you experience difficulty. TRANSLINK™ comes with 10 HRS of pre and post installation support

20.0 Trouble Shooting

20.1. TCP/IP Receiver and Transmitter

My TCP/IP Receiver has no connection?

Make sure the machine port numbers to receive the HL7 order message is correctly set. The sending system should give you port numbers information prior to sending HL7 Order messages. Open the TCP/IP Receiver by [Click] on the "Receiver" shortcut icon from your desk top then [Click] on the "Option" icon to access the Receiver configuration screen.



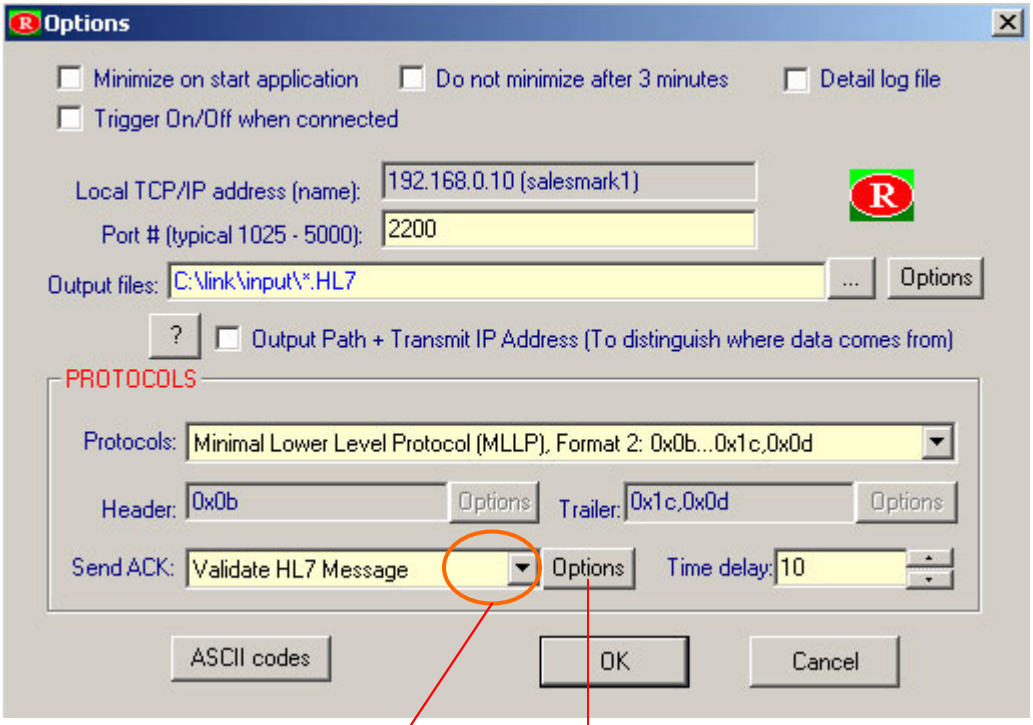
Make sure the port numbers is correctly set to the sending system requirement.

My TCP/IP Receiver has connection but did not send HL7 Acknowledgement to the Sending System?

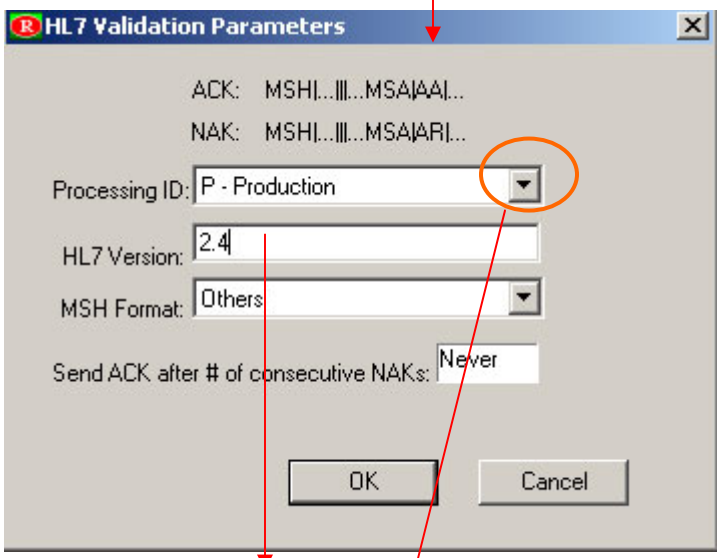
This happened when the receiver is not configured to automatically send an HL7 Acknowledgment. To configure the Receiver to send an HL7 Acknowledgement you must know 2 HL7 order message elements:

1-The Message Type ID located on MSH_11_1 (P, T or D)
2- The HL7 Order message version number MSH_12_1 (2.1, 2.2, 2.3 or 2.4)

To Configure the Receiver for HL7 Acknowledgement mode follow the step below:
Open the TCP/IP Receiver by [Click] on the "Receiver" shortcut icon from your desk top then [Click] on the "Option" icon to access the Receiver configuration screen.



1- [Click] the down arrow and select "Validate HL7 Message" then [Click] "Options to the right to access the HL7 validation configuration screen



2- [Click} on the down arrow to select the "Processing" ID, then type in the HL7 version number currently being used.

How do I configure detail log files on the TCP/IP Receiver and Transmitter?

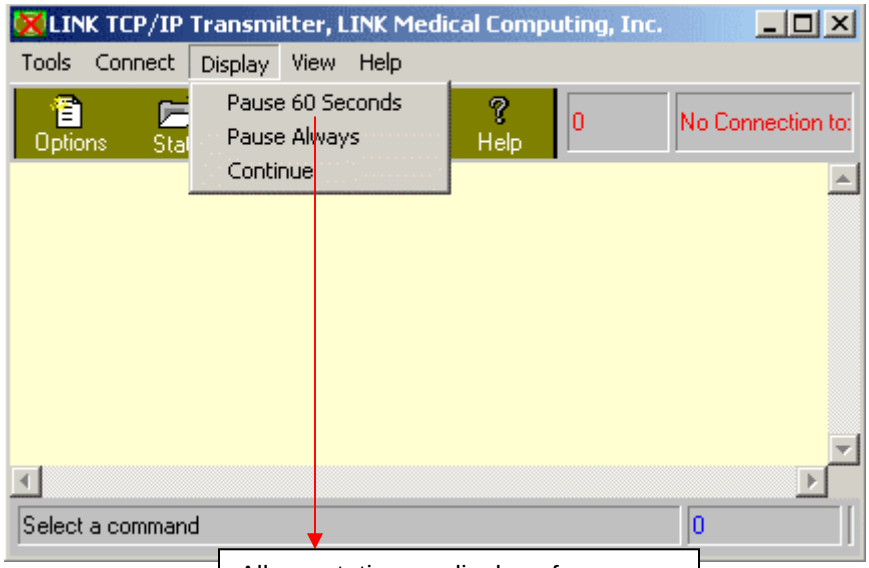
To have a detail log files from the Receiver you must first enable this feature in the receiver configuration by [click] on the check box next to “Detail Log file” , then send the HL7 Order message through. The detail log file is kept by the Receiver in plain text format that include the following information in the” Archive!” folder inside “OrderLNK” interface folder:

1- Date and time the Receiver is turn on or off
2- Socket level connection to what IP address
3- Fail safe of the network connection used by the Receiver
4- Detail message and date/time it is receive by the Receiver
5- Acknowledgement sent to the sending system by the Receiver
6- Error Message sent to the sending system by the Receiver

To access the Receiver “Detail log file” [Right-Click] on the Windows® Start button select” Explore then browse to TRANSLINK™ interface folder. Look for “Archive!” folder double click to open. The “Archive!” folder may contain several more sub folders, [Click] open the “Receive!” folder to access the log file.

What does Display Menu Option do on both the TCP/IP Receiver and Transmitter?

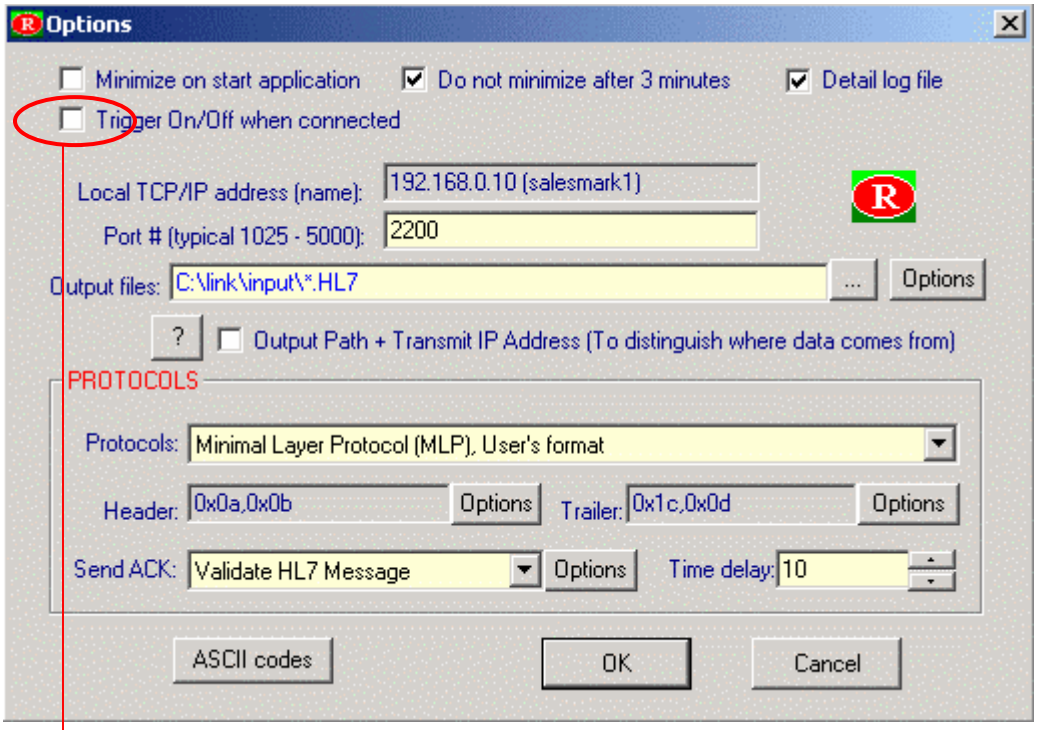
The display menu option allows user to see the content of the transmitted or received message displayed on the Transmitter or Receiver screen. The message is scrolling up as new one being received or transmitted, the Pause for 60 seconds allows user to view the message in stationary mode for 60 seconds. This feature is not stopping the transmitter or receiver from sending or receiving new messages on the background only allows user to see a particular record displayed on screen.



What does Trigger On/Off when connected do if the connection is down? Can you make it send a page or e-mail if the link is down? What does this do if the host connects only if it has data?

The trigger on and off is designed for trouble shooting a connection between user system and the sending system. The triggering mechanism is to look for signal that the network is not down but the transmitter is shutting down when it has no file to send, this process is run in the back ground.

The receiver currently has no mechanism to send an email or page if the connection is lost; however there is an X mark to alert the system admin that there is no connection between the Receiver and Sender. If the sending system disconnect when there is no file to send the receiver will also have an X mark, the triggering mechanism if checked will check the connection every 10 second. For good practice is to leave the Receiver on at all time and checked the trigger on and off when connected only if the network is not stable.



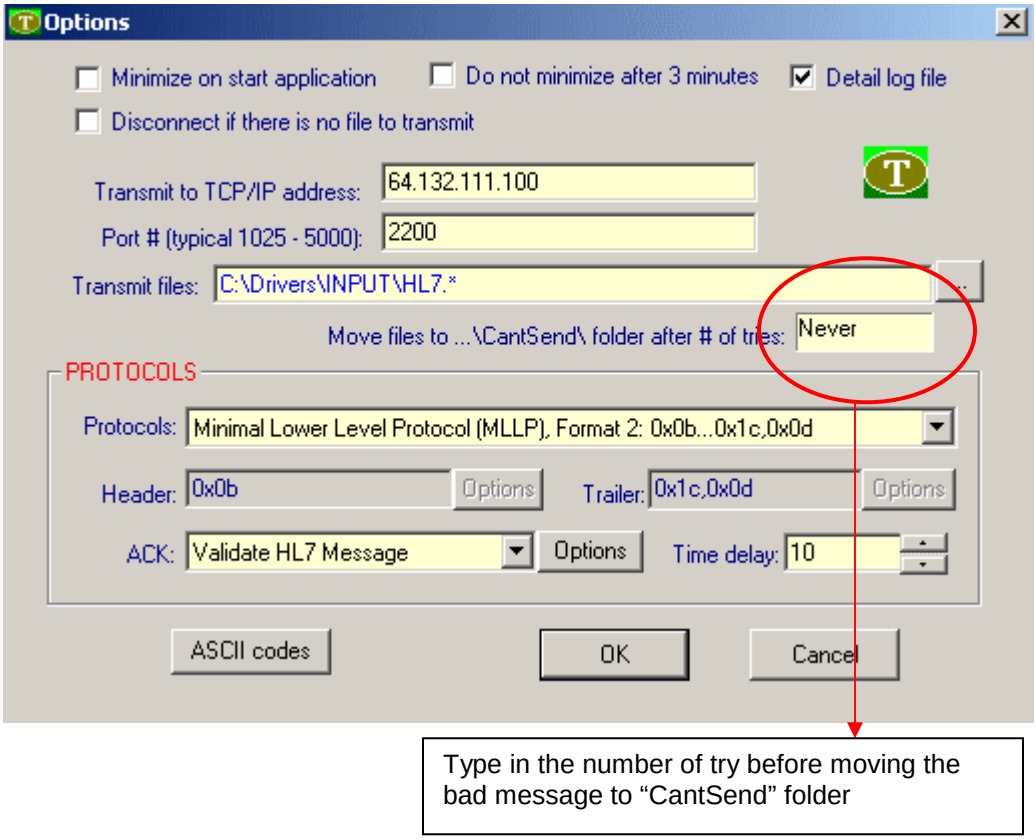
Check this Option only for Trouble shooting the Network connection between Receiver and Sending System

My TCP/IP Receiver has connection but did not keep the file being sent from the HIS?

This is due to the Receiver rejecting the message. Check to make sure that the HL7 Validation and protocols are correctly configured. Check the Header and Trailer of the message being sent some systems used custom Header and Trailer to send their HL7 message.

My Transmitter keep sending the same message over and over, which cause messages to backup in the folder?

The Transmitter is configured to expect a standard HL7 Acknowledgement from the receiving system after the message it is sending is received; however some system only send an Acknowledgement for a valid HL7 message only after it read through the message and determine that it is a valid HL7 message, for some reason that system can not be configured to send the NAK (Error) message if it found an invalid HL7 message. To fix this particular problem configure the TCP/IP Transmitter to move the bad message to the "CantSend" folder after X number of try. The "CantSend" Folder is automatically created in the same folder where the message is being pickup and send.



Type in the number of try before moving the bad message to "CantSend" folder